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HARDY FLORISTS' FLOWERS

BY JAMES DOUGLAS.





Yours Truly
Charles Sumner

HARDY

FLORISTS' FLOWERS:

THEIR CULTIVATION AND MANAGEMENT.

BY

JAMES DOUGLAS, F.R.H.S.,

GARDENER TO FRANCIS WHITBURN, ESQ.,

LOXFORD HALL, ILFORD, ESSEX.

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WILLIAM CATE, PRINTING CONTRACTOR, CURSITOR STREET, E.C.

TO

CHARLES TURNER, OF SLOUGH,

WHOSE LIFE-LONG DEVOTION TO FLORISTS' FLOWERS, HAS SO GREATLY ASSISTED IN THE

PROMOTION OF FLORICULTURE,

THIS SMALL VOLUME IS DEDICATED,

AS A SLIGHT TRIBUTE OF RESPECT.





PREFACE.

DURING the last few years, the plants popularly designated as "Florists' flowers" have been very much sought after by the general public, and their cultivation has consequently been much extended. Many persons with but little knowledge of practical horticulture see them in the gardens of friends; they are charmed with their sweetness, their beautiful colours, and exquisite form; and naturally become anxious to procure and grow them; but they are confronted at the outset with two difficulties, the trouble of obtaining the plants, and the absence of any definite knowledge as to their requirements. A gentleman of considerable horticultural experience once said to me, "It is possible that persons with plenty of money at their command may be able to procure a collection of Auriculas, but probably not more than one in ten of them could keep the plants in health after they have obtained them." I have many times

been asked for information as to the proper treatment of various florists' flowers by amateurs of this class, and also by gentlemens' gardeners, who, though possessing an intimate knowledge of the various branches of their profession, still had no practical knowledge of the technicalities incidental to some sections of floriculture; and it is to meet the want, the growing want, as I believe, of such information, that has induced me to string my thoughts together, and commit them to print in the following pages, with the hope that, in however humble a way, the directions there given may prove of some service to the cause of floriculture.

There are still a few of the old florists alive who cultivated the Auricula fifty years ago, and who still pay unwearied attention to the flowers they loved and tended in their youth. Such an one is Mr. Alex. Meiklejohn of the Raploch, near Stirling, where the worthy old man may be seen tending his plants in the same place as he watched over them fifty years ago; and what a large fund of rational enjoyments he obtains from his plants all the year round. He remarked to me a few years ago when I visited him, "that there was not a happier old man in all Scotland." Nearly all his contemporaries have passed away except Peter Campbell of Falkirk, but the works of such men as Robert Trail of Aberledy, George Lightbody of Falkirk, Richard Headly of Stapleford and others, remain as *living* witnesses of their skill and perseverance.

There are, however, many worthy successors working patiently in the same field, so that those of us who remain can begin where they left off, and obtain the same enjoyments with the additional pleasure of knowing that we have a higher stand point to work from. The same remarks apply to other flowers that have been manipulated by our predecessors, in this fair field of Flora's domain. The ground-work in every instance has been well and carefully laid, and if at first sight the rules laid down for our guidance seem to be too rigid, let us be slow to find fault, but rather study the flowers in their various points of excellence until in all probability we are forced to exclaim, "The old florists were right after all!"

The flowers that have been treated of in this book are, with the exception of the Dahlia, quite hardy, and may be cultivated with very little expense, and are thus within the range of the humblest cultivator; though on this account it does not follow that they are to be despised by any lover of flowers. When they are well-grown, as I hope the instructions given in this book will enable any one to grow them, they are worthy of the admiration of the most refined taste. I have admired the plants with intense delight, and grown them almost from my boyhood, although it is not for me to say with what success. I would, however, like to say that those who wish to be successful must go the right way to attain that end. It is not sufficient to know the requirements of the plants;

it is necessary that they should be attended to at the right time. Insects, for instance, slowly but surely sap the life springs of the plants, and a wise cultivator will try to keep them off; prevention being not only better, but easier than effecting a cure. Cleanliness too, is all important. Keep the frames and houses clean. The glass and wood-work free from dirt, especially in winter. Out of doors in the flower-borders and beds let weeds have no place; it does good to hoe the ground when there are no weeds, and if this is done half as often as it is necessary to do it when weeds have obtained the upper hand, none will appear. To do all this involves some self-sacrifice, it requires that work must be done when one does not feel inclined to do it; steady and patient labour too, when the unsuccessful grower is only grumbling at the difficulties of the situation.

The question almost arises here—What is success? Certainly it is not being able to obtain large prizes at this or that flower show. Flower shows are very well for the purposes for which they were designed. They are the means of the general public seeing the flowers, and becoming acquainted with them. I have always upheld, and will still continue to uphold, such exhibitions. But the results obtained there must not be taken as the measure of an amateur's success; this must rather be gauged by the pleasure and satisfaction of having done the best that could be done under the circumstances, and of being able to produce finer

flowers than one's fondest ambition ever dreamt of. The greatest poet in English history makes one of his characters say—

> "'Tis not in mortals to command success;
> But we'll do more, Sempronius,—we'll deserve it";

and that should be the aim of every florist.

It now only remains for me to say that some of the chapters in my book have lately been published in the columns of the *Gardener's Chronicle*, and that the substance of one or two others has appeared in the *Gardener's Magazine* and *The Garden*. To the Editors of the *Gardener's Chronicle*, to Mr. Cannell of Swanley, and to Messrs. James Veitch & Sons of Chelsea, my best thanks are due for kindly assistance rendered to me by the loan of wood engravings.

J. D.

December, 1879.



INTRODUCTION.

On a sign-post, or a milestone, the wayfarer looks for nothing beyond a plain and legible direction.

He would rightly consider high degrees of ornamentation thereupon as ludicrously out of place, adding nothing to the information wanted, and hardly competent, at the best, to enhance the natural beauties of the scene. The writer, therefore, of the following pages need surely have no cause to fear for the acceptibility of his little work because of its directions being plain and practical along that branching road, so full of natural beauties, in which it is set up; a guide to the stranger; a remembrancer for him who may not, since long ago, have been able to tread the floricultural paths he loved of old.

One trusts the mile-post, with its brief and pointed guidance, as having been placed in its responsible position by those who knew, and had carefully meted out the way.

Like confidence may be reposed in one who has had the heart and time to grow skilled in the culture of the different flowers of which he treats. Some knowledge of the history of the subject, and a wide warm friendship among his fellow-florists, whose collections and modes of cultivation he has seen and noted, form a breadth of experience which is valuable and not common.

The spreading interest in what are known as "florist-flowers," will lead, it is to be hoped, to their gaining the favour and influence they deserve to hold in the floricultural world.

Floral fashions may be to blame for much, but if there has been really a forsaking and forgetting of florist-flowers, a heartless fashion has perhaps been least among possible causes. For these special flowers have not found a home in formal gardens, where play of changeful fancy was likely to displace them. They were never in the hands of those to whom flowers are mere masses of so much colouring matter in natural paints; for whom garden arrangement, forms and tints must ever alter—as though the garden were a huge mechanical optical toy, setting forth, (like the child's kaleidoscope with its magic stained-glass flower beds,) a new combination of its colour-sets at every periodic twist of fancy.

A touching history, if it could be written, would be the nurture and ministry of florist flowers. They have been the delight of many a man in whom

the love of nature was inborn and inextinguishable, but whose means were very spare, whose leisure time was very scant, and whose advantages in pure air and light and garden space were very poor and cramped. Little could he see, in his toiling, pent-up life, of the changes as they came and went across the face of the green earth; of silky meadows, sheep-flecked pastures, sweet bloom of bean and clover fields, the poppies in the ripening corn, the Autumn leaves and berries that break into a bloom of gold and scarlet when the flowers are gone. Yet did the Spring smile on him in his Polyanthuses and Auriculas and Pansies, and Summer visit him in the bloom of his Tulips, Pinks, Ranunculuses, Carnations, and Picotees. In one or more of these, his love of nature found expression, and enough to live upon.

In like manner, too, might not the song-bird in his cage know something of such refreshing pleasures, in his own small way, when he had sprays of groundsel-blossom brought him, or there were laid on the arid sands of his little desert a few inches of white clover turf—a tiny oasis—smelling of green fields?

But many of our busy towns, which, in the boyhood of men now middle-aged, had outskirt gardens, the familiar haunts of old florists, have spread their unlovely overgrowths of brick and mortar far beyond. It used to be a clear mile outside the town where in the earliest years of my florist life I grew Auriculas and Tulips; now, however, a raw and dreary street of

monotonous tenements, and with an unmeaning name, overlies the old green spot; and in a dismal mood I once called in on "No. 4" as being built exactly over the tulip-beds of twenty years. How much farther a-field one would have to go there now to find a home for flowers it would be hard to say.

There yet stands many an old house, deeply embedded in a town, that used to have its garden—oftentimes a florist's. Here, for instance, is the very window—curiously long and lightsome—at which a handloom weaver worked behind his loom, able to watch his flowers as closely as his work—his labour and his pleasure intermingled, interwoven as intimately as his silken threads. But the mill may have supplanted his patient hand-machine, and brick-work swallowed up his garden; and it is very likely that many sets of circumstances such as these have lessened the number of those who have done so much to cherish "florist's flowers."

It is dearly to be wished that florists were again as numerous and strong a body as to have some periodic work all their own; wherein to record experiences, experiments, losses and successes, interchanging the "Gossip of the Garden" as simply and freely as it might be talked in the garden itself.

With what interest we turn back, in a leisure evening hour sometimes, to the closed volumes of the long past in florist matters.

The pages are grown yellow, the book is sere in the

leaf, the very type is of an ancient-looking cast; the embellishments seem wrought in an unsettled and laborious way, the pictures being of flowers of a fashion as thin, transitional, and out of date as seems the contemporary portrait of one's great grandmother in her girlhood. We come across a quaint style of dialogue between Mr. "Would-know" and Professor "Bloomwell," the former an imaginary youth so preternaturally raw that there seems no hope of shaping anything like a florist out of him, and the other an old stager, of such phenomenal success as to be far too good for this floral world, in which the best of us have our losses and disappointments. We had both sense and nonsense written then, as we have now; and it was put forth sometimes with a roughness not compatible with the amenities of the gentle craft.

But there is always something valuable in that which helps to an interchange of knowledge, and gives a body of men coherence. Such service have these old-fashioned volumes done in their day, and in many a branch of horticulture such does the floral press to-day. And Mr. Douglas, in the work that follows, offers a service to the cause of florist flowers, which we will hope he is to find thoroughly recognized.

But I am forgetting that an "Introduction," like the cotyledons of a new-born plant, is but as the seed leaf that ushers the young life into the world. So with this function discharged in a naturally brief plain way, I leave the little work to pass into the

rough leaf of its full character, with the wish that it may prove full of interest to old florists, and of trusty guidance to beginners. "*Indocti discant; juvent meminisse periti.*"

FRANCIS D. HORNER.

KIRKBY MALZEARD, RIPON.
December, 1879.

THE AURICULA.

(*Primula Auricula*).

THE generic name, Primula, is derived from *primus*, the first, in allusion to its early flowering; and the specific name, Auricula, from *auris*, an ear, the leaves having some resemblance to the ears of certain animals, such as the bear. It has also been called "Bear's-ears" in some districts, and "Sow's-ears" in others; while it is also not unknown as "The Dusty Miller," from the leaves of some varieties being thickly covered with white farina. The native home of the Auricula is Switzerland, Austria, Syria, and the Caucasus. In its wild state it is most frequently found with powdered leaves, but occasionally plants are met with in which the foliage is destitute of meal. The flowers are borne on trusses, and are of a bright yellow colour. They are sufficiently hardy to grow out of doors in any part of the British Isles. It has been stated that the refined varieties will not live out of doors through the winter, and that if a few should succeed in withstanding the rigours of our winters, they will not flower satisfactorily; but that the whole of the

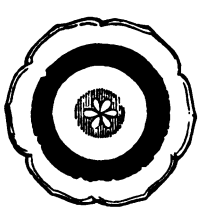
Alpine section will live during a very severe winter, I have proved conclusively, by planting out a selection of our best varieties in October, 1878. These plants were fully exposed during the ensuing severe winter, and not a single plant failed; they were quite as healthy as those in pots, and flowered quite as freely, though somewhat later.

The more delicate sections of edged flowers were also represented in this group, and they braved the winter quite as well, but the flowers were worthless, owing to their delicate marking being so easily injured by rain drops.

To enjoy the fine varieties that have been selected by many generations of florists, they must be grown under glass all the year round. For facility of reference and identification, the Auricula is divided into five sections or classes, and are arranged as follows:

I.—*Green-edged Flowers.*

This class includes all that have the outer margin of the flowers quite green, or dusted very sparingly indeed with farina; in which case the spots should be so thinly placed that, notwithstanding their presence, the



(Fig. 1.) THE AURICULA "PIP."

edge still appears green. Inside this edge is the body colour; and black is the most esteemed, though, perhaps, no flower has really a black body colour. The purplish maroon is, however, almost black; and there are, besides, other shades, such as maroon, violet, and plum colours. The colour strikes or flashes into the edge, and has not yet been found in an almost compact ring, as represented in the "model" Auricula shown in drawings. (See fig. 1.) Should the body colour strike quite



(Fig. 2.) A MODEL AURICULA, REDUCED.

through the green colour, it is a serious defect, and spoils the appearance of the flowers. The inner edge of the body colour should be quite circular, but it is not always

so, being sometimes angular, while, in other instances, it appears as if little bits had been scolloped out of it. These are all defects, and tell very much against any flowers, no matter how pure the colours may be. One of the very best green edges, Freedom (Booth), has an angular paste, which is the one glaring fault of this otherwise fine flower. Admiral Napier (Campbell) is another example of a flower with this defect. The paste comes next, and it should be dense and pure white, the whiteness caused by a dense coating of white farina, and this should encircle an eye or tube of bright yellow. The paste, body colour, and edge may be faultless, but if the tube is not highly coloured, the flower wants expression. Apollo (Beeston) has a very good green edge, but its great fault as a flower is a pale-coloured tube; and Prince of Greens (Trail) is a more striking instance of a flower having a pale tube, while in other respects possessing points of the highest order. We are still a long way from perfection in green edges, although many of the varieties are very beautiful.

II.—*Grey-edged Flowers.*

This class comprises all those that have the outer edge, which is green, so thickly dusted with farina that the green is almost hidden, and the edge is grey. The other points are the same as I have already defined in the last paragraph. It is worthy of remark, that the most perfect Auriculas yet raised are to be found in this class. George Lightbody (Headly) is the best Auricula yet raised; the stem supporting the truss being strong *and elastic,* and never needing any support, while the

pips are regularly arranged on stout foot stalks, forming a very symmetrical head. Lancashire Hero (Lancashire) is also a noble flower, and when at its best is but little inferior to George Lightbody. The edge, however, is not quite so decided a grey, the farina being occasionally so thinly scattered on the edge that it may be classed with the greens.

III.—*White-edged Flowers.*

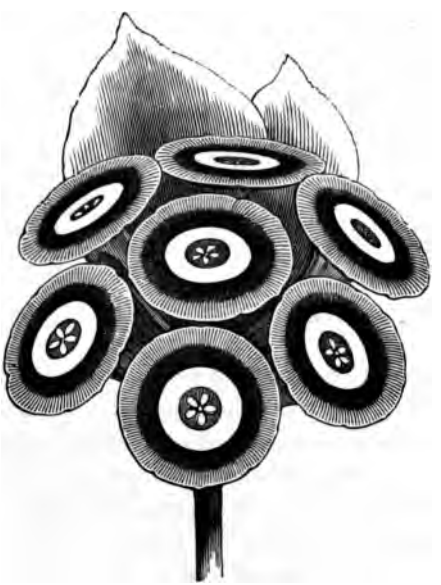
This class is distinguished from the grey by the greater density of the farina on the edge of the flowers. In some instances this is laid on so heavily that it is as thick as the paste. A fault often apparent in white edges, and one from which many of the greys are not exempt, is the body-colour being dusted with the farina which ought to be on the edge instead. Catherina (Summerscales) has this fault, but it is otherwise a good flower, though small. Earl Grosvenor (Lee) has the same defect; and others are so bad that they cannot be tolerated in a select collection.

IV.—*Selfs.*

The selfs are flowers that are all of one colour outside the paste. The ground colour lacks an edge of any kind. The self class contains many colours which are or ought to be solid, without shading; these are yellow, slate, bluish violet, violet, purple, and maroon. In all of the above the leaves are green or white, in about equal proportions, except the green-edged class, which contains no varieties with white leaves.

V.—*Alpines.*

This section is considerably removed from any of the above classes, and it is the hardiest of all. The flowers are, or ought to be, destitute of farina; the centre of the flower being free from meal, as well as the other parts. The centre should be golden yellow, but it is of various shades, some being very pale, nay, almost white. The edge is of one colour, shading off paler towards the margin. The best Alpines are those with gold centres and maroon shaded edges. Those with pale centres have usually mauve or light purple shaded edges. There are also self-edged Alpines, which are very pretty, but they



(Fig. 3.) A PERFECT "TRUSS."

have a heavy appearance in comparison with the shaded flowers. Many otherwise good Alpines have the fault of the stigma protruding above the anthers, and all of these should be discarded. The stigma should be placed well down in the flower, the anthers filling up the mouth of the tube.

The truss (see fig. 3) in all cases should be well formed of five, seven, nine, or eleven pips, as even numbers do not seem to fill in quite so well as odd ones. The stem should be stout and elastic, and long enough to carry the head of bloom above the foliage. To the ordinary observer the edged flowers have considerable resemblance to each other, but the fancier is usually quite satisfied with their distinctive marks, and can name any flower in the collection, whether they happen to be in flower or not. The diversity of foliage is very striking indeed in the Auricula, some varieties having the foliage quite as thickly dusted with farina as the flowers ; others, again, vary much in shape, and also in the serratures of the edges.

Propagation.

This is effected by seeds, to obtain new varieties ; by dividing the plants, and by offsets, to increase established sorts. The greatest success in producing good new and distinct varieties is obtained when the seeds have been saved from sorts that have been carefully impreguated by the pollen of another flower ; and usually the pollen parent has the greatest effect on the progeny. To make sure that the flowers are not self-impregnated, the anthers must be removed from the seed bearer before the pollen

is scattered. This can be done with a pair of sharp pointed scissors, before the flowers are open. A small camel's-hair brush is used to convey the pollen from the anthers of one flower to the stigma of the other. Of course the very best varieties only should be used, both as seed and pollen bearers. It is better not to cross one class with another, but rather to let the green-edged be crossed with green, &c. I would cross Apollo (Beeston) with Admiral Napier (Campbell), or if the parents can be obtained, Prince of Greens (Trail) with Freedom (Booth). In the grey edges use Robert Trail (Lightbody) with George Lightbody (Headly) as the pollen parent. Marie (Chapman) is a good pollen parent, and may be crossed with Colonel Champneys (Turner), to obtain flowers with good violet grounds. In white edges Smiling Beauty (Heap) may be crossed with True Briton (Hepworth), or Glory (Taylor) with Marie (Chapman), the latter, though classed with the greys, being often a white edge. In selfs, Pizarro (Campbell) may well be crossed with Ellen Lancaster (Pohlman); and different shades of crimson may be obtained by crossing Duke of Argyle (Campbell) or Marquis of Lorne (Campbell) with Lord Lee (Berry) or Mrs. Sturrock (Martin).

The seeds will ripen in July and should be sown at once, in small shallow pans or pots, using the ordinary potting material in the bottom, and some fine soil on the surface. In three or four weeks a few plants will appear above ground, but the largest proportion of the seeds will not vegetate until the spring of the following year, though a few will continue to appear at intervals during the summer. It is very desirable that the later plants

should be well cared for, as they usually produce the best flowers. The young plants are very small, but as soon as the first leaf after the seed leaves is formed the plants must be pricked out, about a dozen of them in a large sixty or three inch pot. They will speedily gain strength here, and when the leaves meet together they must again be potted, say four plants in the same sized pots, and again when these become crowded they should be re-potted singly in similar pots, in which they should be allowed to flower.

Propagation by division is effected when a plant forms two main growths; split the plant carefully down the centre, then rub the wounds well with dry lime and pot each portion separately. Offsets are thrown out more numerously by some varieties than by others, but they should be removed when roots are formed at their base; place three or four of these round the sides of thumb-pots in light soil. Sometimes the top of an old plant can be taken off and potted, when a number of offsets will start from the old crown. In this way I have raised about 50 plants of Taylor's Glory in three or four years. The tap-root, or carrot, has to be cut off at potting time, and if this is potted in light soil and placed under a bell-glass, a number of plants are sometimes produced from the offsets. All the offsets form roots most readily if the pots are placed under a close glass. They require but little water at first, and the glass should be occasionally wiped—as this, with careful watering, will prevent any of them damping off. When it is seen that the offsets are established, air must be admitted, and be given more freely as growth is made. Re-pot

them singly into small pots, as soon as they are well-established.

To grow Auriculas well, they must be attended to all the year round, though during the winter season, when the plants are at rest, they require the least attention, and, during this period, only sufficient water should be given to the roots to keep the plants from shrivelling. About the end of February growth commences, and at that time the surface soil should be removed to the depth of an inch or more, replacing it with a rich compost, made up of two parts of rotten turfy loam, and one of rotten cow manure, with a fourth part of the bulk of leaf-mould. After this water should be applied to the roots rather freely, but still admit plenty of air, and if any green fly are to be seen on the plants it ought to be destroyed by fumigating the frames with tobacco smoke, on a still evening. When the trusses are well developed, the frame must be covered with mats, to preserve them from being injured by frosts, when there are any signs of it at night. Indeed, it is safest to cover the glass with mats every night.

It is not necessary to have frames specially designed for Auriculas, to grow them well, as ordinary garden frames, such as are used for Cucumbers, answer very well. The plants when in bloom may be removed to a house of any construction. The Rev. F. D. Horner, of Kirkby Malzeard, places his plants in a lean-to house, with a stage 3 or 4 feet wide in the front; then a path and a stage at the back, which is at a very considerable distance from the glass. The best plants are, of course, placed on the front stage near the glass, where they

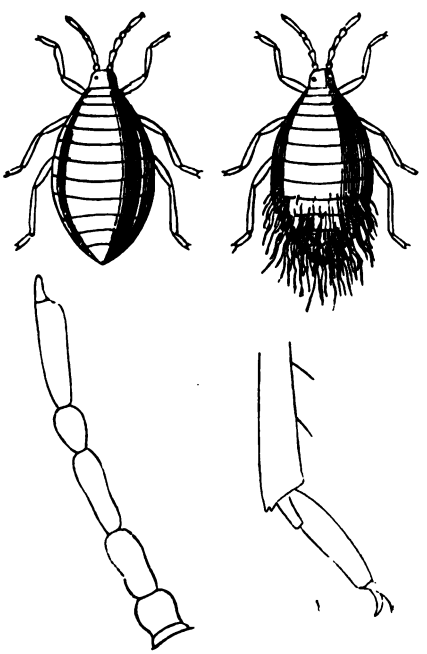
get a good supply of air when the ventilators are open. At Loxford Hall the house in which the plants are placed to open their flowers, is a span-roofed structure, running north and south. The plants are arranged on either side of the centre path, and they are placed as near as possible to the glass. Those who cannot afford the luxury of a house for their Auriculas, need not be envious, as they can obtain very good results from the frames. It is needless to urge the importance of shading the blooms from the sun, which would destroy them in an hour.

Potting.

When the flowering period is over, it will be time to see to the re-potting of the plants; that is, if it is not intended to save seeds from them. Remove the plants to frames behind a north wall at once. There is no mystery, as some suppose, about the potting, any more than there is about the potting material. The compost should consist of turfy loam four parts; leaf mould one part; sharp river or silver sand one part; and a few bits of broken charcoal mixed with it. The pots to be used should be from three to four and a half inches in diameter, inside measure; about one inch of potsherds should be placed in the bottom of each pot, and this over some fibrous turf, from which the fine particles of earth have been removed. The old soil should be shaken from the roots of the plants to be potted, and before potting cut off, if necessary, a portion of the main root. In potting, press the soil rather firmly round the roots. When the plants are potted replace them in the frames on a

level surface. Keep the lights rather close for a few days, and do not water them until the third day after potting. It ought to be stated that it does not answer to cut the loam within the range of the smoke of large manufacturing towns, such as Manchester, Leeds, Sheffield, &c. The plants will thrive in the midst of the smoke, but the loam must be pure.

When the newly potted plants are established, the frame lights should be removed except when it rains. I do not like to see the beautiful foliage injured by rain, at



(Fig. 4.) THE AURICULA APHIS.—TRAMA AURICULÆ.

any time. The old leaves will continue to decay during the summer months, and they must be removed, as they become yellow. May and June are the best months in which to re-pot; but those plants which are reserved for seeds, cannot be re-potted until the seeds are gathered in July. Green fly is a most troublesome pest during summer; if only a few plants are attacked by it, they may be removed with a soft brush. If they are spread all over the frame it is best to fumigate.

During the last two or three years the roots of Auriculas have been found attacked by a species of louse, resembling the American blight, which attacks Apple-trees. It has been described as Trama Auriculæ by the late Mr. Andrew Murray, and the annexed illustration (see fig. 4) from the *Gardener's Chronicle*, shows the insect magnified. The pest clusters round the neck of the plant, as well as burrowing under-ground. The only effectual remedy is to shake the plants affected out of the pots and wash the roots with soft soapy water, repotting again in good soil.

Exhibiting Auriculas.

It would be difficult to say how long it is since the first Auricula exhibition was held, as the oldest growers now living cannot remember the time when there were no Auricula shows. During the last few years they have been held in Manchester and London on a much larger scale than they ever were before. And their popularity has been evidenced by the large number of visitors that crowd to see this lovely flower in its best dress.

There are two methods adopted of conveying the plants to exhibitions; one of which is to turn them out of the pots, and to wrap the roots firmly round with cloth or paper, so that they may be placed closely together in a suitable box, for transmission to the place of exhibition. By this system of packing, one grower can place sixty plants in two boxes, which he can carry in his hands. Those living close to the show take the plants as they are in pots, in a light van, placing some hay or straw between the pots to keep them from injuring one another. The trusses must be secured to a neat stick, and some cotton wadding must also be placed between the pips, to prevent them from being injured.

On arriving at the place of exhibition, the plants that were turned out must again be placed in pots, without undoing the roots, some nice green moss being placed on the surface, to hide any defects. At the exhibitions of the northern section of the National Auricula Society, held in Manchester, all "artificial packing" must be removed, not even a stick being allowed to keep the truss erect. The southern section of the society hold their show in London, and here it is recommended that the trusses be supported with neat sticks. It seems to be an old rule with the fanciers that no sticks should be placed to the flower stem. The old growers were proud of exhibiting them, so that they might show the stem stout and elastic. My own impression is that a neat stick placed behind the stems is an advantage, as showing off the trusses better, because they are all held erect; and there cannot be any more harm in supporting an Auricula

flower in its place than there is in placing sticks to any other flower.

The colours should also be harmoniously arranged on the tables, and the classes must also be judiciously arranged. If the exhibitor intends to show in the class for twelve Auriculas, it is best to have three distinct varieties from each of the four classes. The following list comprises the names of the best twenty-four Auriculas, six of each class :—

Green-edged.—Colonel Taylor (Leigh); Prince of Greens (Trail); Anna (Trail); Freedom (Booth); Champion (Page); Apollo (Beeston).

Grey-edged.—George Lightbody (Headley); Lancashire Hero (Lancashire); George Levick (Walker); Charles E. Brown (Headley); Alexander Meiklejohn (Kay); Complete (Sykes).

White-edged.—Smiling Beauty (Heap); Regular (Ashworth); Glory (Taylor); John Simonite (Walker); True Briton (Hepworth); Anne Smith (Smith).

Selfs.—Pizarro (Campbell); Ellen Lancaster (Pohlman); William Lightbody (Lightbody); Charles J. Perry (Turner); Duke of Argyle (Campbell); Topsy (Kay).

A year or two ago the Rev. F. D. Horner was at considerable pains to collect lists of the best varieties of Auriculas, from the principal growers in Great Britain and Ireland, and twenty-six growers sent in returns with the following results :—

GREEN EDGED.

	VOTES.		VOTES.
Colonel Taylor (Leigh)	26	Prince of Wales (Ashton)	14
Freedom (Booth)	22	Prince of Greens (Trail)	13
Imperator (Litton)	19	Champion (Page)	13

GREEN EDGED *(continued)*

	VOTES.		VOTES.
Apollo (Beeston)	9	Apollo (Hudson)	1
Alderman Wisbey (Headly)	5	Admiral Napier (Campbell)	1
Lovely Ann (Oliver)	3	Highland Boy (Pollitt)	1
Lord Palmerston (Campbell)	3	Duke of Wellington (Dickson)	1
Lord Nelson (Howard)	2	Lycurgus (Smith)	1
Robin Hood (Hepworth)	2	Lady Ann Wilbraham (Oliver)	1
General Neil (Trail)	2	Jubilee (Moore)	1
Standard of England (Pollitt)	2		

GREY EDGED.

	VOTES.		VOTES.
George Lightbody (Headly)	26	Richard Headly (Lightbody)	4
Lancashire Hero (Lancashire)	26	Czar (Read) *	3
Complete (Sykes)	18	Dr. Horner (Read)	3
Alexander Meiklejohn (Kay)	16	Privateer (Grime)	3
George Levick (Walker)	10	Ne plus ultra (Fletcher)	2
Chas. E. Brown (Headly)	9	Stapleford Hero (Headly)	1
Robert Trail (Lightbody)	8	Unique (Lightbody)	1
General Bolivar (Smith)	5	Sir H. Havelock (Jeffray)	1
John Waterston (Cunningham)	4	Sir R. Peel (Lightbody)	1
Conqueror of Europe (Waterhouse)	4	Duke of Cambridge (Dickson)	1
		Lady Ann (Fletcher)	1

* Czar and Dr. Horner are probably one and the same in these lists, owing to an accident in showing them.

WHITE EDGED.

	VOTES.		VOTES.
Smiling Beauty (Heap)	26	Emma (Wright)	2
True Briton (Hepworth)	23	Robert Burns (Campbell)	2
Regular (Ashworth)	17	Bonnie Lass (Ashton)	2
Glory (Taylor)	15	Arabella (Headly)	2
Catherina (Summerscales)	14	Beauty (Trail)	1
Bright Venus (Lee)	14	Sophia Dumaresque (Lightbody)	1
Favourite (Taylor)	9	Robert Trail (Lightbody)	1
Countess of Wilton (Cheetham)	5	White Rival (Trail)	1
Ne plus Ultra (Smith)	5	Omega (Turner)	1
Anne Smith (Smith)	5	Lord Chancellor	1
Earl Grosvenor (Lee)	4	Miss Lightbody (Lightbody)	1
John Simonite (Walker)	3		

SELFS.

	VOTES.		VOTES.
Othello (Netherwood).	19	Metropolitan (Spalding)	5
Pizarro (Campbell)	18	True Blue (Whitaker)	4
Blackbird (Spalding)	15	William Lightbody (Lightbody)	3
Garibaldi (Pohlman)	14	Petronella (Headly)	2
Chas. J. Perry (Turner)	13	Jupiter (Kay)	2
Meteor Flag (Lightbody)	12	Apollo (Hay)	2
Mrs. Sturrock (Martin)	9	Lord Primate (Berry)	1
Ellen Lancaster (Pohlman)	9	Garland (Smith)	1
Topsy (Kay)	6	Formosa (Smith)	1
Duke of Argyle (Campbell)	6	Blue Bonnet (Clegg)	1
Lord of Lorne (Campbell)	6	Metropolitan (Redmayne)	1
Lord Clyde (Lightbody)	6		

Since the above lists were published, several good and distinct varieties have been exhibited, but no new ones have been introduced to the public. The Auricula cannot be propagated very rapidly, and it may be a number of years from the time a seedling is first seen until it is in the hands of the public. There are many persons now raising seedlings on a scientific basis.

Rev. F. D. Horner has some good varieties in all the classes; and Mr. B. Simonite, of Sheffield, has made even greater progress, if we may judge from what the intelligent Sheffield grower has exhibited during the last few years.

ALPHABETICAL LIST OF SHOW AURICULAS.

I append the following alphabetical list of named Auriculas, in the hope that, as all are no doubt more or less in cultivation, it may prove of some service to Auricula growers, old and young alike :—

GREEN EDGED.

Admiral Napier (Campbell).
Alderman Wisbey (Headly).
Anna (Trail).
Apollo (Beeston).
Apollo (Hudson).
Atlas (Lightbody).
Attraction (Turner).
Champion (Page).
Cedo Nulli (Headly).
Colonel Taylor (Leigh).
Colonel (Franklin).
Conductor (Headly).
Duke of Wellington (Dickson).
Earl of Errol (Dickson).
Eclipse (Finlayson).
Emerald (Heath).
Excellent (Headly).
Fairy Queen (Lightbody).
Freedom (Booth).
Freeman (Hilton).
Garland (Salter).
General Havelock (Trail).
General Neil (Trail).
Green Hero (Yates Morris).
Highland Boy (Pollitt).
Imperator (Litton).
John Bright (Finlayson).
John Buddle (Dorman).
Jolly Tar (Buckley).
Jubilee (Moore).
Lady Ann Wilbraham (Oliver).
Lady Blucher (Clegg).
Lady Gardener (Compton).
Lady Richardson (Gairn).
Lord Byron (Campbell).
Lord John Russell (Smith).
Lord Lynedoch (Lightbody).
Lord Nelson (Howard).
Lord Palmerston (Campbell).
Lovely Ann (Oliver).
Lycurgus (Smith).
Martin Luther (Cummings).
Mary Queen of Scots (Strong).
Matilda (Dickson).
Mayflower (Trail).
May Morning (Simpson).
Mrs. Clark (Trail).
Napoleon (Trail).
Ne plus ultra (Faulkner).
Oliver Cromwell (Cummings).
Ploughboy (Taylor).
Prince Albert (Dickson).
Prince of Greens (Trail).
Prince of Wales (Ashton).
Professor (Trail).
Robin Hood (Hepworth).
Rev. Geo. Jeans (Trail).
St. Augustine (Cunningham).
Sir Isaac Newton (Strong).
Sir John Moore (Lightbody).
Sir Walter Scott (Lightbody).
Standard of England (Pollitt).
Star of Bethlehem (Lightbody).
Superintendent (Mattley).

GREEN EDGED *(continued)*.

Trafalgar (Partington).
Violet (Moore).
Waterloo (Hogg).
Waterloo (Smith).
Waterloo (Strong).
Waverley (Walker).

GREY EDGED.

Alexander Meiklejohn (Kay).
Alma (Lightbody).
Badajoz (Pearson).
Britannia (Hedge).
British Hero (Cox).
Captain Barclay (Smith).
Charles E. Brown (Headly).
Colonel Champneys (Turner).
Competitor (Turner).
Complete (Sykes).
Conqueror of Europe (Waterhouse).
Dr. Horner (Read).
Ensign (Turner).
Fair Flora (Beeston).
General Bolivar (Smith).
George Levick (Walker).
George Lightbody (Headly).
Inkerman (Lightbody).
John Waterston (Cunningham).
Lady Jane Grey (Trail).
Lady Jane Grey (Dixon).
Lancashire Hero (Lancashire).
Maria (Chapman).
Mary (Clark).
Mary Ann (Fletcher).
Morning Star (Barlow).
Ne plus ultra (Fletcher).
Newton Hero (Ashworth).
Perfection (Bone).
Privateer (Grime).
Prize (Nicol).
Queen Victoria (Kent).
Richard Headly (Lightbody).
Ringleader (Kenyon).
Robert Trail (Lightbody).
Sir Charles Napier (Lightbody).
Sir Henry Havelock (Jeffray).
Sir Robert Peel (Finlayson).
Sir W. Peel (Lightbody).
Sophia (Chapman).
Splendour (Headly).
Squire Chilman (Wilmer).
Stapleford Hero (Headly).
Superb (Headly).
Union (Warris).
Unique (Dickson).
Unique (Maclean).
Unique (Lightbody).
Village Bride (Holland).

WHITE EDGED.

Acme (Read).
Anne Smith (Smith).
Arabella (Headly).
Beauty (Trail).
Bonnie Lass (Ashton).
Bright Phœbus (Wild).
Bright Venus (Lee).
Catherina (Summerscales).
Conqueror (Popplewell).
Countess of Dunmore (Lightbody).
Countess of Wilton (Cheetham).

WHITE EDGED *(continued)*.

Crucifix (Clegg).
Earl Grosvenor (Lee).
Emma (Wright).
Fair Maid (Lightbody).
Favorite (Taylor).
Glory (Taylor).
Highland Queen (Horsefield).
Incomparable (McDonald).
Incomparable (Taylor).
John Simonite (Walker).
League (Smith).
Lily of the Valley (Hinchcliffe).
Lord Chancellor.
Maggie Lauder (Lowe).
Mrs. Campbell (Cunningham).
Mrs. Headly (Lightbody).
Miss Jeffray (Jeffray).
Miss Lightbody (Lightbody).
Miss Willoughby (Hufton).
Model (Gairn).
My Jeannie (Cunningham).
Ne plus ultra (Smith).
Omega (Turner).
Pillar of Beauty (Hughes).
Prince Albert (Lewin).
Princess Royal (Taylor).
Regular (Ashworth).
Regulator (Pott).
Robert Burns (Campbell).
Smiling Beauty (Heap).
Sophia Dumaresque (Lightbody).
True Briton (Hepworth).
White Rival (Trail).

SELFS.

Admiral of the Blue (Lightbody).
Apollo (Kay), syn. Metropolitan (Redmayne).
Bessie Bell (Spalding).
Blackbird (Spalding).
Blue Bonnet (Clegg).
Bonnie Bessie Lee (Lowe), syn. Formosa (Smith).
Charles J. Perry (Turner).
Duke of Argyle (Campbell).
Eclipse (Martin).
Eliza (Sims).
Ellen Lancaster (Pohlman).
Formosa (Smith). Bonnie Bessie Lee (Lowe).
Freedom (Kenyon).
Garibaldi (Pohlman).
Garland (Smith).
Hannibal (Faulkner), syn. Squire Mundy.
Jessie Ann (Sims).
Jupiter (Kay).
Lord Clyde (Lightbody).
Lord Lee (Berry).
Lord Primate (Berry).
Lord of Lorne (Campbell).
Mary Gray (Spalding).
Meteor Flag (Lightbody).
Metropolitan (Spalding).
Metropolitan (Parker).
Metropolitan (Redmayne). Apollo (Kay).
Miss Black (Martin).
Miss Brightly (Spalding).
Mrs. Smith (Smith).
Mrs. Sturrock (Martin).
Nonesuch (Barker).

SELFS *(continued)*.

North Star (Richmond).
Othello (Netherwood).
Oxonian (Maltby).
Petronella (Headly).
Pizarro (Campbell).
Royal Purple (Headly).
Squire Smith (Chapman).
Stadtholder (Gorton).
Topsy (Kay).
True Blue (Whittaker).
Vulcan (Sims).
William Rule (Simpson).
William Lightbody (Lightbody).

ALPINE AURICULAS.

These are so distinct from the show Auriculas, as almost to suggest a different primal source; they are much more hardy, and are well adapted for withstanding the vicissitudes of our insular climate. There are some persons, quite able to appreciate the beautiful in nature, who declare that the Alpine Auricula is more beautiful than the show varieties. Still, notwithstanding their ability to judge, the question arises whether they have given sufficient time, or even had the opportunity to study the relative beauties of the flowers. The delicate refinement of the green, grey, and white-edged flowers is seldom appreciated by the mere casual observer. A comparison may be taken from an exhibition of pictures. The mere sight-seer is not attracted to the paintings that have the greatest merit, but rather to those that are the most showy, and which would be passed by Mr. Ruskin —as a matter of fact it is so. That the Alpine Auricula is beautiful no one will deny; but it has not been so long nor so patiently cultivated as the other sections; indeed, it is only within the last ten or fifteen years that the best varieties have been introduced. Those intending

to raise new varieties should obtain a selection of the best at present in cultivation; the flowers produce seeds very freely, and the young seedlings will flower in a shorter period than the others. The Alpines succeed well in the open borders, or in beds; and also form a very beautiful plant for rock-work. As to culture in pots, it is very similar to that of the others, except that it is usual to place the plants out of doors during the summer months, behind a north wall or hedge; the diffused light suits the plants, and being partially shaded, they do not require so much water.

The following is a list of some of the best Alpines :—

A. F. Barron (Turner).
Beatrice (Turner).
Black Prince (Turner).
Bronze Queen (Turner).
Colonel Scott (Turner).
Diadem (Gorton).
Diamond (Turner).
Dolly Varden (Turner).
Duchess of Connaught (Turner).
George Lightbody (Turner).
Jessie (Turner).
John Leech (Turner).
King of the Belgians (Turner).
Mrs. Dodwell (Turner).
Mrs. Llewelyn (Turner).
Mrs. Meiklejohn (Meiklejohn).
Queen Victoria (Turner).
Spangle (Turner).
Selina (Turner).
Sydney (Turner).

THE CARNATION AND PICOTEE.

THESE fine old-fashioned flowers are held in great esteem by all who love flowers for their sweetness and beauty. Deliciously scented, and with a perfume peculiarly their own, the flowers are also very attractive, by reason of their rich and varied colours. They are well adapted for pot culture ; indeed, in no other way can delicate constitutioned sorts be induced to produce well-marked, full-sized flowers. The strong growing sorts do well planted out in beds and borders, and the great variety of colours serve to make a rich and varied display in such positions. It is difficult to realise the fact that flowers like the Carnation and Picotee should decline in popularity even for a time. One very probable reason, however, may be that many of the finest old varieties had very delicate constitutions, and would not thrive if grown on from year to year in the open ground. Many of the hardiest varieties have been universally grown as border flowers in all classes of gardens, but in many instances little or no attention has been given to their annual propagation by layers or from slips, and the

flowers have reverted to a semi-wild state. Half a century ago there were perhaps hundreds of complete collections of Carnations and Picotees, and they were grown by all classes of gardeners and amateurs. But a few years after this another style of gardening began to be adopted in fashionable gardens; tender plants were grown in hothouses during the winter, and were planted out during the summer months, and the little cloud no bigger than a man's hand rapidly increased, until the whole country became overshadowed with it, and 5,000 Calceolarias, 5,000 Verbenas, 5,000 Zonal Pelargoniums, &c., were required in one establishment. With the strain upon the gardener to supply such quantities of plants, and the amount of space required under glass for their development, no wonder that the old florists' flowers went to the wall. People are now getting tired of the monotony of dazzling masses of colour, and flowers are being valued more for their intrinsic merit. I find, on reference to the old periodicals, that the Carnation and Picotee were held in much esteem as florists' flowers about the year 1833, and annual exhibitions were held especially for them in such provincial towns as Halifax, Newark, Sheffield, Lancaster, Leicester, &c. There were many first-class flowers in cultivation at that time, but nearly all of them have been lost. One variety, named in the catalogue of Mr. C. Turner, of Slough, Cartwright's Rainbow, was then in cultivation; also a very fine rose-flake, Flora's Garland (Brooks), which was sent out in 1835, and I mention it now because it was exhibited at South Kensington in 1876, and compared most favorably with others of the same class. To make success certain,

it is necessary to grow a very large proportion of plants in pots, for although the plant is sufficiently hardy so far as frost has any effect upon it, the vicissitudes of an English winter are too trying for the tender, weakly growing sorts, without the shelter of a cold frame.

Those intending to form a collection of plants should take notes of the different varieties while they are in flower. A descriptive catalogue is an excellent guide to a beginner, but it is not desirable to trust to this alone, as there must always be considerable latitude allowed for difference of taste. The plants should be sent home as soon as they are removed from the parent plant, which is usually done in October. They are sold in pairs, and the two plants should be at once potted in a small sized pot, and be placed in a cold frame, there to remain until they have become well established, with the lights kept rather close over them. I like to place the pots near the glass, and the lights are removed entirely whenever the weather is fine. The worst enemy to the Carnation in winter is damp. The thick fogs that we experience in the neighbourhood of London are very trying to the plants, and they are much injured when these are long-continued. I noticed, when on a visit to the collection of E. S. Dodwell, Esq., Clapham, that he stands his plants on trellis-work, and raises the frames from the ground, so that air can circulate freely underneath the plants. I have used rather light soil in which to pot the layers in the autumn, and no manure has been mixed with it, only about a fourth part of leaf-mould and sufficient sharp river sand to keep the soil open.

Greenfly is a troublesome pest when the plants are

under glass. It can be destroyed by dipping the whole plant in soft-soapy water, to which a little tobacco-liquor has been added; but when the collection of plants is large, it takes a long time to go over them. The most preferable plan is to fumigate with tobacco-smoke, and this must be continued at intervals until the whole are destroyed. I have never seen the plants injured by smoke when they are at rest during the winter, but when the young growth is developed in spring it is very tender, and if the smoke is too strong, the growth suffers. It is well, too, in February and March, to pay considerable attention to ventilating the frames in which the plants are growing; the east wind is sometimes very trying, and when it blows keen and cold, with bright sunshine, the plants must be freely aired, and yet sheltered from the blast. I tilt the lights on the side opposite to that from which the wind blows; this admits plenty of air, and the plants do not suffer from the wind.

I generally begin to pot about the third week in February. By that time considerable growth has been made, and if the operation is delayed, as it sometimes is, well into March, the plants receive a considerable check to their growth. Many persons turn their plants out into the open as they are potted. I do not do this if it can be avoided, but rather place the plants back again into the frames until they are established. One great objection to placing the plants out-of-doors at once is that a heavy rain may fall upon them before any fresh roots are formed, and so be the cause of much injury. I put the sticks intended to support the flowers to the plants as soon as they are placed out-of-doors; a plant will not

make many fresh roots if it is not held firmly in its place. As the stem grows it is supported by being fastened to the stick with matting. I have grown the plants in many different sizes of pots, but I do not care to use them larger than 10 inches in diameter, inside measure, and three plants may be put in a pot that size; a 9-inch pot may be used for a pair of a strong growing sort, while weaker growers may be potted two in an 8 or even a 7-inch pot. If it is intended to propagate all the layers produced, that must be taken into account, as the plants will not have so good a chance in a small as in a large pot. As the plants progress in growth, it is pleasant and interesting work to attend to disbudding, tying the yet undeveloped flowers to the sticks, and to watch their progress from day to day. If there is any tendency in the flowers to burst the calyx open, the segments on the opposite side should be slit down a little, and the calyx should also be tied round, not too tightly, with linen thread, or a strip of matting will answer the purpose; should the pod split, the petals will fall out, and quite spoil the symmetry of the flower. If the flowers are intended for exhibition, they must be protected in some way from the weather; the best plan is to take the pots into a glass-house, where air can be freely admitted, and where the flowers can be shaded from bright sunshine if necessary. Many persons have not the convenience—such will find a very good makeshift in arranging the plants on a bed and driving a row of posts down both sides of it, the posts to be about 9 inches taller on one side; a rail should be nailed on the top to support any spare lights from frames which are

not usually in use at the time the Carnations are in flower. To prevent the wind from blowing underneath, and driving rain from injuring the flowers, it is very desirable to nail some canvas or shading material round the sides, but sufficient space must be left near the top for ventilation, and the glass lights must also be covered with some light material when the blooms are nearly open if the sun shines.

Saving Seeds.

To obtain new varieties of the Carnation and Picotee, it is necessary to resort to artificial means, in order to obtain seeds that will give the best results. The pollen of one variety must be conveyed to the stigma of another with a small camel's hair brush, and this must be repeated on several successive days, to make sure that the application has been effective. It is not usual to remove the pollen from the seed-bearing parent, because the flowers are seldom self-fertilized. In selecting seed and pollen-bearing parents, only those flowers that possess the greatest number of points of excellence should be chosen. In Carnations bizarres of one class should be crossed with flowers of the same class. Thus Admiral Curzon would make a good pollen parent to be crossed with Mars as a seed bearer. Sarah Payne crossed with James Taylor would give good flowers in a weak class. Sportsman in scarlet flakes might be crossed with John Bayley in the same class. In Picotees heavy red edges must be crossed with the same, thus J. B. Bryant would make an excellent pollen parent for John Smith seed bearer; Thomas William, light red, would be an excel-

lent pollen parent for Violet Douglas seed bearer. The same remarks hold good all through the classes.

In Carnations the whites should be pure, and the colours—whether there be two, as in the bizarre, or one, as in the flake—should be decided, rich, and well-defined. The Picotees should also be pure in the white, without spots or bars, and the edge should be regular and of a decided bright colour, not dashing into the white, as it does in Rival Purple, Edith Dombrain, and some others.

The following are the properties of a good Carnation: the stem of the flower should be stout, not less than thirty nor more than forty-five inches high, and able to support the weight of the flowers without their hanging down; the flower should be at least three inches in diameter; the petals should be long, broad, and substantial, particularly those of the outer circle of petals, commonly called the guard petals, these should rise perpendicularly about half an inch above the calyx, and then turn off gracefully in a horizontal direction, supporting the inner petals, which should gradually decrease in size, and fill up without crowding the centre of the flower. All the petals should be regularly disposed, and lie over each other in such a manner that their respective beauties should meet the eye altogether; they should be nearly flat, or with only a small degree of inflection at the broad end; their edges should be perfectly entire, without notch, fringe, or indenture. The calyx should be at least an inch long, and sufficiently strong at the top to keep the bases of the petals in a strong and circular body. The middle of the flowers

should not rise too high above the other parts. The colours should be bright and equally marked all over the flowers. The stripes should be regular, narrowing gradually to the claw of the petal, and there ending in a fine point. Almost one half of each petal should be white and free from spots.

The Picotee: the same remarks hold good as to the form of the flowers and formation of the petals as in Carnations. It ought to be stated here that a number of good Carnations have been introduced by sporting. Thus Sportsman, scarlet flake, has sported from Admiral Curzon, scarlet bizarre. The maroon has disappeared altogether, and the sport is our finest scarlet flake. Sporting Lass, a new purple flake, has been selected in the same way from Sarah Payne (Ward), one of the best pink and purple bizarres. Every year there are a large number of sports in every large collection. You may purchase scarlet, purple, or rose flakes, and find when the plants flower that you have a scarlet, purple, or rose self, and the same remark applies to the other classes.

Propagating by Layers.

Nine-tenths or more of all the Carnations and Picotees propagated are by layering. The *modus operandi* is this: begin by stripping off the leaves near the base of the cutting; then take off about an inch of the surface soil, replacing it with a compost of equal parts of good loam, leaf mould, and sharp sand. The stem of the cutting is half severed with a sharp knife, just under a joint, then cut upwards through the joint, and peg the

layer well into the fresh compost. The plants should stand out of doors after being layered.

The following is a list of the best sorts of CARNATIONS at present in cultivation :—

Scarlet Bizarres.—Admiral Curzon (Easom); Dreadnought (Daniels); Lord Napier (Taylor); Mars (Hextall); Mercury (Hextall); Sir Joseph Paxton (Ely); True Briton (Hepworth).

Crimson Bizarres.—Albion's Pride (Headly); Captain Stott (Jackson); Eccentric Jack (Wood); Jenny Lind (Puxley); John Simonite (Simonite); J. D. Hextall (Simonite); Lord Raglan (Bower); Rifleman (Wood); Warrior (Slater).

Pink and Purple Bizarres.—Falconbridge (May); James Taylor (Gibbons); Sarah Payne (Ward).

Purple Flakes.—Dr. Foster (Foster); Earl of Stamford (Addis); Juno (Baildon); Mayor of Nottingham (Taylor); James Douglas (Simonite); Premier (Milwood); Squire Meynell (Brabbin); True Blue (Taylor).

Scarlet Flakes.—Clipper (Fletcher); Dan Godfrey (Holmes); James Cheetham (Chadwick); John Bayley (Dodwell); Mr. Battersby (Gibbons); Sportsman (Hedderley); Superb (Ingram).

Rose Flakes. — Crista-Galli (Whittaker); Flora's Garland (Brooks); James Merryweather (Wood); John Keet (Whitehead); Lovely Ann (Ely); Mary Ann (Fletcher); Maid of Athens (Ely); Rose of Stapleford (Headly); Sybil (Holmes).

The following are the best PICOTEES. The letter H; indicates the heavy, and L the light-edged flowers :—

Red-edged.—Brunette (Kirtland) H; J. B. Bryant (Ingram) H; Clara (Bower) L; John Smith (Bower) H; Mrs. Bower (Bower) L; Mrs. Dodwell (Turner) H; Princess of Wales (Fellowes); Rev. F. D. Horner (Lord) L; Thomas William (Flowdy) L; William Summers (Simonite) L; Violet Douglas (Simonite).

Purple-edged.—Alliance (Fellowes) H; Alice (Lord) L; Ann Lord (Lord) L; Mary (Simonite) L; Mrs. Niven (Niven) H; Minnie (Lord) L; Picco (Jackson) H; Mrs. Summers (Simonite) H; Norfolk Beauty (Fellowes) H; Silvia (Simonite) L; Zerlina (Lord) H.

Rose and Scarlet-edged.—David Motley (Adams) H; Edith Dombrain (Turner) H; Ethel (Fellowes) L; Fanny Helen (Niven) H; Juliana (Turner) H; Miss Horner (Lord) H; Miss Lee (Lord) L; Miss Wood (Wood) L; Mrs. Adams (Adams) L; Mrs. Allcroft (Turner) L; Mrs. Lord (Lord) H; Mrs. Payne (Turner) L; Obadiah (Kirtland) H; Royal Visit (Turner) H; Teresa (Simonite) L.

The above is a selection of all the best and most constant varieties that have yet been introduced, and nearly all of them are free in growth.

To the above selections I add some lists that have been kindly sent to me, as representing the most favoured sorts grown in the Northern, Midland, and Southern Counties. That from Newcastle-upon-Tyne is from a district as late as the Southern Counties of Scotland. The Bradford list represents the coldest district in Yorkshire, and Mr. Simonite's selection is from the earliest

district in that large county. The list sent by Mr. Turner, of Slough, contains the best of the more recent introductions, as well as of the older sorts.

From Mr. E. Adams, Swalwell, near Newcastle-upon-Tyne :—

Scarlet Bizarres.—Admiral Curzon (Easom); Mars (Hextall); Dreadnought (Daniels); Sir J. Paxton (Ely).

Crimson Bizarres.—Eccentric Jack (Wood); John Harland (Adams); Lord Raglan (Bower); Rev. George Rudrick (Reeves); Rifleman (Wood); Lamplighter (Wood).

Pink and Purple Bizarres.—Falconbridge (May); Sarah Payne (Ward).

Purple Flakes.—James Douglas (Simonite); Juno (Baildon); Squire Meynell (Brabbin); True Blue (Taylor).

Scarlet Flakes.—Annihilator (Jackson); Clipper (Fletcher); Mr. Battersby (Gibbons); Sportsman (Hedderley).

Rose Flakes.—Flora's Garland (Brooks); James Carter (Adams); John Keet (Whitehead); Sybil (Holmes).

Red-edged Picotees.—J. B. Bryant (Ingram) H; John Smith (Bower) H; Miss Small (Fellowes) H; Mrs. Dodwell (Turner) H; Mrs. Keynes (Fellowes) L; Thomas William (Flowdy) L; William Summers (Simonite) H.

Purple-edged.—Alice (Lord) L; Minnie (Lord) L; Alliance (Fellowes) H; Chanticleer (Fellowes) H; Cynthia (Turner) L; Mary (Simonite) L; Mrs. Summers (Simonite) H; Zerlina (Lord) H.

Rose-edged.—Edith Dombrain (Turner) H; Ethel (Fellowes) L; Maid of Clifton (Taylor) L; Miss Williams (Norman) L; Miss Wood (Wood) H; Mrs. Adams (Adams) L; Mrs. Allcroft (Turner) L; Northern Star (Wood) L; Regina (Fellowes).

From Mr. B. Simonite, Rough Bank, Sheffield :—

Scarlet Bizarres.—Admiral Curzon (Easom); Dreadnought (Daniels); Mercury (Hextall); Sir J. Paxton (Ely).

Crimson Bizarres.—Eccentric Jack (Wood); J. D. Hextall (Simonite); John Simonite (Simonite); Rifleman (Wood).

Pink and Purple Bizarres.—Falconbridge (May); James Taylor (Gibbons); Sarah Payne (Ward); Twyford Perfection (Young).

Purple Flakes.—Dr. Foster (Foster); Earl Stamford (Elliott); James Douglas (Simonite); Squire Meynell (Brabbin).

Scarlet Flakes.—Annihilator (Jackson); Clipper (Fletcher); John Bayley (Dodwell); Sportsman (Hedderly).

Rose Flakes.—James Merryweather (Wood); John Keet (Whitehead); Lovely Ann (Ely); Sybil (Holmes).

Picotees.

Red-edged.—John Smith (Bower) H; J. B. Bryant (Ingram) H; Leonora (Fellowes) H; Princess of Wales (Fellowes) H; Rev. F. D. Horner (Lord) L; Thomas William (Flowdy) L; Violet Douglas (Simonite) L; William Summers (Simonite) L.

Purple-edged.—Ann Lord (Lord) L; Mrs. Niven (Marris) H; Fanny (Lord) L; Mary (Simonite) L; Minnie (Lord) L; Mrs. Douglas (Simonite); Mrs. Summers (Simonite) H; Zerlina (Lord) L.

Rose-edged.—Fanny Helen (Niven) H; Lady Louisa (Abercrombie) H; Miss Horner (Lord) H; Miss Wood (Wood) L; Miss Lee (Lord) H; Mrs. Allcroft (Turner) L; Teresa (Simonite) L; William Summers (Simonite) L.

From Mr. Charles Turner, the Royal Nurseries, Slough :—

CARNATIONS.

Scarlet Bizarres.—Admiral Curzon (Easom); Mars (Hextall); Sir J. Paxton (Ely); True Briton (Hepworth).

Crimson Bizarres.—Albert Chancellor (Abercrombie); Eccentric Jack (Wood); John Simonite (Simonite); Rifleman (Wood).

Pink and Purple Bizarres.—Falconbridge (May); James Taylor (Gibbons); Purity (Wood); Unexpected (Wood).

Purple Flakes.—Dr. Foster (Foster); Florence Nightingale (Sealey); James Douglas (Simonite); Mayor of Nottingham (Taylor).

Scarlet Flakes.—Annihilator (Jackson); Clipper (Fletcher); James Cheetham (Chadwick); Sportsman (Hedderly).

Rose Flakes.—James Merryweather (Wood); John Keet (Whitehead); Rose of Stapleford (Headly); Sybil (Holmes).

PICOTEES.

Red-edged.—Brunette (Kirtland) H; Dr. Abercrombie (Fellowes) H; J. B. Bryant (Ingram) H; John Smith (Bower) H; Leonora (Fellowes) H; Mrs. Wilson (Fellowes) H; Princess Mary (Fellowes) H; Thomas William (Flowdy) L.

Purple-edged.—Alliance (Fellowes) H; Her Majesty (Addis) L; Emily (Addis) L; Leah (Addis) H; Minnie (Lord); Mrs. Niven (Marris); Rev. J. B. M. Camm (Fellowes) H; Zerlina (Lord).

Rose-edged.—Edith Dombrain (Turner) H; Edith Turner (Abercrombie) L; Estelle (Fellowes) L; Ethel (Fellowes) L; Juliana (Turner) H; Lady Louisa (Abercrombie) H; Miss Lee (Lord) H; Mrs. Payne (Fellowes) H.

From Mr. George Rudd, Undercliffe, Bradford, Yorkshire :—

CARNATIONS.

Scarlet Bizarres.—Admiral Curzon (Easom); Sir Joseph Paxton (Ely); Mercury (Hextall); True Briton (Hepworth).

Crimson Bizarres.—Eccentric Jack (Wood); J. D. Hextall (Simonite); John Harland (Adams); Lord Milton (Ely); Lord Raglan (Bower); Rifleman (Wood).

Pink and Purple Bizarres.—Falconbridge (May); James Taylor (Gibbons); Sarah Payne (Ward).

Purple Flakes.—Dr. Foster (Foster); James Douglas (Simonite); Juno (Baildon); Squire Meynell *(Brabbin).*

Scarlet Flakes. — Annihilator (Jackson); Clipper (Fletcher); John Bayley (Dodwell); Sportsman (Hedderly).

Rose Flakes. — John Keet (Whitehead); James Merryweather (Wood); Sybil (Holmes).

PICOTEES.

Red-edged.—Clara (Bower) L; Grösten (Fletcher) L; J. B. Bryant (Ingram) H; John Smith (Bower) H; Master Norman (Norman) H; Mrs. Dodwell (Turner) H; Mrs. Fuller H; Princess of Wales (Fellowes) H; Thomas William (Flowdy) L.

Purple-edged.—Alliance (Fellowes) H; John Delaforce (Norman) H; Fanny (Lord) L; Mary (Simonite) L; Minnie (Lord) L; Norfolk Beauty (Fellowes) H; Zerlina (Lord) H.

Rose and Scarlet-edged.—Charles Williams (Norman) H; Edith Dombrain (Turner) H; Lady Louisa (Abercrombie) H; Ethel (Fellowes) L; Mrs. Allcroft (Turner) L; Mrs. Nicholls (Simonite) L; Teresa (Simonite) L.

TREE, OR PERPETUAL FLOWERING CARNATIONS.

When the days are at their shortest, and keen frosty winds have cleared the gardens of all their sweet-scented flowers, the occupants of the greenhouses are naturally more valued; and what flower is there more easily grown and more worthy of admiration than that named at the head of this paper? All the summer and autumn months the plants have been in a favourable position out-of-doors; the whole attention they have required has been to tie the stems to a stick as they advance in

growth, and to keep the pots well supplied with water at the roots. They have now been removed into the greenhouse, and their beautiful sweet-smelling flowers will be highly valued all through the winter months. As a proof of their great value, I may say that out of a collection of not more than four or five dozens of plants we are seldom without flowers from October until the ordinary varieties of the florist type come in about the end of July. To obtain this result the plants must not only be well grown, but free flowering sorts must be selected.

Their culture is very simple, and success may be attained by those not possessing much glass accommodation, or who have but little knowledge of gardening. A greenhouse cannot be kept constantly full of flowering plants unless there is also a range of pits or frames, as feeders to the larger structure. It is not every garden that has such, and many gardeners are not in a much better case in this respect than the children of Israel when they were commanded to make bricks and find their own straw. To all such that require choice flowers in winter I commend the culture of perpetual flowering Carnations. In order to obtain large flowering plants by November, it is necessary to begin to propagate early in the year. If there is a small artificially-heated propagating house on the place, the cuttings may be put in from the middle of January. The small side-growths strike root most freely, and they should be just slipped off and dibbed into 4-inch or 5-inch pots, in fine soil; a thin layer of silver-sand should be placed on the top of the soil. I plunge the pots in a gentle bottom heat, and

the temperature of the house should be about 50° to 55° at night; over the pots I place a square of glass—it rests upon the labels that are inserted in the pots. This plan prevents too rapid evaporation, and the plants are not so likely to die off, as they sometimes do early in the year when quite covered with glass.

They do not take long to form roots, and when this is the case the glass must be removed, or, as most likely, the freest growing sorts will root first, the pots that contain rooted plants must be taken out and placed on a shelf, near the glass, until the more stubborn sorts have also formed roots. I leave the cutting pots on that shelf until they are fairly filled with roots, then the young plants are potted off singly into small pots; and here it is necessary to remark that the potting material ought to be good turfy, clayey loam, four parts, one part rotten stable manure, as much leaf-mould, and sufficient sharp river sand to keep the compost open. Let the pots be clean and well drained; the soil to be pressed firmly round the roots with the fingers. Some varieties grow very much more freely than others, and will by the end of the season require much larger pots. Even at the first potting off the weakly varieties should be potted in small sixties, and the robust-growing varieties in large sixties. The plants should be taken back to the forcing house and placed near the glass again. They require a night temperature of 50° to 55° to keep up a gentle growth. If they were put into a greenhouse, or cold frame, in February or March, the growth would be checked. I do not care to turn them out into cold frames until April, and from there they are removed into the open air in

May. The plants must be potted on as they require it during the season. I generally pot the strongest into 8-inch pots, while those 6 inches in diameter, inside measure, are large enough for others to flower in. Those who have not the convenience of a forcing house can have early plants raised in a hot-bed, but they ought not to be put in until a month later, nor before the heat has considerably declined. They must be potted off in the same way as the others, and be grown on until May in cold frames. Those who have not even a cold frame, can propagate young stock by layering the old plants in August ; when rooted, pot them up and place the pots in the greenhouse, or in a shady place out-of-doors. These will make very strong flowering plants in twelve months, but they are not likely to produce many flowers in the following winter.

The only insect pest that is likely to cripple the plants is greenfly, and it can be destroyed by fumigating. Many of the varieties are apt to run up with long stems when grown under glass, but this tendency can be checked by placing them near the glass, admitting as much air as possible under the circumstances, and keeping the atmosphere rather dry. Let it always be understood that a damp close atmosphere causes an apparently more rapid growth, but it is not healthy development—it is haste, not speed.

A few words as to varieties. Nearly all the new sorts have emanated from the Royal Nurseries, Slough. They are either raised there or introduced to the public through Mr. Turner. There are three varieties that have been introduced to the public from other sources, and as they

should be in every collection, their names must be given. They are Miss Jolliffe (Masters), La Belle (Blackley), and Annie Williams, sent out, I believe, by Mr. Williams, of Holloway. La Belle is pure white, and the other two are rose, or flesh-coloured—all of them grow freely, and are amongst the best for market purposes. A. Alegatière still holds its position as a dwarf free flowering sort with bright scarlet flowers. Guelder Rose has large pure white flowers. Empress of Germany, a free growing desirable sort, has large pure white flowers, very slightly flaked with rose. Sir Garnet Wolseley must be grown for its distinct buff-coloured flowers, edged and flaked with red. King of the Belgians does not grow so freely as some, and it is still scarce, its large rose-coloured flowers are neatly fringed. Rose Perfection, Scarlet Defiance, Prince of Orange, Celestial, Mons. Baldwin, Proserpine, Gloire de Lyon, and Duke of Wellington, should all be grown.

Yellow-ground Picotees.

There has always been a class of yellow-ground Picotees, but until the last few years it was so badly represented that few admirers of the Picotee cared to cultivate them at all, The plants were of such delicate constitution that they refused to grow under the most favourable conditions ; and latterly no attempt had been made to obtain improved varieties from seed, until the advent of Prince of Orange (Perkins), which marked a new era in the history of yellow-ground Picotees. A very good variety, introduced by the late Mr. John Standish, and named Ascot Yellow, was much in

demand for some time, but it has not a good constitution, and is not nearly so much valued as the first-named variety. The flowers of Prince of Orange, though large and showy, are sadly deficient in florist properties, owing to the centre petals being too small and too great in number. Several florists had suggested that Prince of Orange would be a good variety to save seeds from, but no one seems to have done anything with it until Mr. Charles Turner saved seeds and raised about 250 plants. Out of that batch a number of very fine varieties have been selected, some of them better than the parent, in that they have better formed petals, and are of various shades of yellow.

The batch contains a few selfs, but there are many fine flowers edged with red or crimson ; and, although the ground colour is slightly varied and spotted, there is still considerable improvement on the type. It will take many years yet to bring the flowers up to the same standard of perfection that those with white grounds have reached, but the object to be attained is well worth the effort, although there is always recompense enough to the seedling-raiser in the pleasure to be derived from watching the plants flower, and feeling that, in a sense, he has left the floral world better than he found it.

Some of the best flowers raised by Mr. Turner are contained in the following list, and it ought to be stated that they flowered for the first time in 1878 ;—Eleanor ; primrose, with a narrow red edge, and the ground marked with bars of the same colour. Henry Tait ; yellow ground with flakes of red, and heavily coloured

on the edge. Lady Roseberry ; clear pale yellow self, a well-shaped flower. Lord Beaconsfield ; reddish buff, edged with crimson. Mrs. Coleman ; flowers large, with well-shaped petals, edged and barred with crimson. Mrs. Purves ; clear yellow, with crimson edge and a few bars, petals well-shaped and neatly arranged. Ne Plus Ultra ; clear yellow flowers of large size, petals broad edged with reddish scarlet, the ground colour slightly barred. Ophir ; yellow self, with good shaped flowers. Princess Beatrice ; a very fine flower of a paler yellow than Prince of Orange, petals well-shaped, edged with crimson, and has a few bars near the edge of the petals. Princess Marguerite ; pale yellow, edged and flaked with scarlet. Sultan ; a fine full flower of a rich orange red colour, with crimson bars. Add to the above list Prince of Orange, and there is a dozen flowers quite unique in character, and worthy of cultivation in the most select collections.



THE TULIP.

THIS gorgeous flower, once held in such esteem, both in Britain and on the continent of Europe, is now but little grown south of the Trent or north of the Tweed. There are signs, however, that its cultivation is on the increase. Stimulated by a small band of enthusiastic cultivators in the neighbourhood of Manchester, and also by the interest shown in the flower by the Manchester Botanical and Horticultural Society, the interest in it is spreading not only in the midland counties, but at a great distance from the point where the liveliest enthusiasm prevails. It is not desirable that the same unhealthy excitement should prevail in the future, that our forefathers and some even amongst us now saw in the past. It is within the memory of our oldest florists, when not only the most outrageous money prices were given for single roots of rare varieties, but horses and carriages, houses and land, were bartered away with the recklessness of gamblers at a roulette-table, or unprincipled dealers on the Stock Exchange. As late as the year 1854 Mr. Groom, of Clapham-rise, catalogued show

Tulips at enormous prices. Duchess of Cambridge, Princess Mary of Cambridge, and Miss Eliza Seymour were sold at 100 guineas, others at 50, 21, and 10 guineas. The following year the whole of Mr. Groom's roots were sold by auction, as they stood in the rows, at very low prices, and from this time the Tulip declined in the public favour at a rapid rate. The system of bedding-out tender plants during the summer, such as Pelargoniums, Verbenas, Lobelias, Ageratums, &c., rapidly increased in popularity, and with it, in the same ratio, the taste for the Tulip and many other florists' flowers declined.

Mr. Groom was the principal commercial grower of Tulips in the neighbourhood of London ; his collection, I believe, comprised in all something over 200,000 roots. His plan of culture was to grow them in rather poor soil, using very little manure, and mixing with the loam considerable quantities of river sand. He did not care so much for size as for purity in the cup, and to obtain this he starved them into purity; on the other hand, Mr. Barlow says purity and refinement are not achieved by starvation. A liberal but not gross culture is best. Mr. Charles Turner, of Slough, was a grower of Tulips at this time, as he is now, but more attention was bestowed upon them, and he was able to compete successfully with growers in the North on their own ground.

The Tulip will grow and flower pretty well if planted in ordinary garden soil, but to produce the grand blooms seen at the Manchester exhibitions something more is required. My own method is to trench the ground 2 feet deep, manuring it heavily at the same time ; the manure

used is partially rotted, and the top layer of it is at least 6 inches below the surface. If possible the ground should be prepared in September, in order that the soil may be pulverised by exposure to the weather. At the time of planting I have some rotted turf chopped up that has lain in a heap for six months. The beds are then marked out 4 feet wide, with a space of 18 inches between, about two or three inches of the soil is thrown from the beds, some of it into the alleys between. The 4-feet space is then filled up to the depth of 6 inches with this maiden loam. The bed is then ready for planting, and as the space is 4 feet wide it will contain

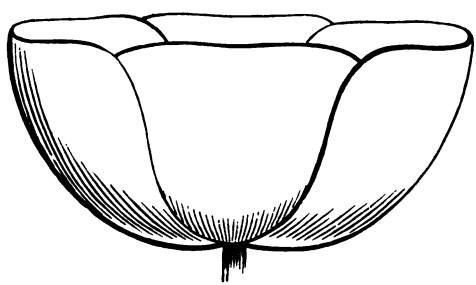


(Fig. 5.) FLAMED AND FEATHERED PETALS.

seven rows ; the first rows, 3 inches from the edge, will allow the other five to be 7 inches apart. The flowers are all arranged in sizes, and are termed first, second, third, and fourth row flowers, according to their height, the tallest being planted in the centre. They must also be planted according to colour, much in the following *manner* :—

Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.
Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.
Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.
Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.
Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.
Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.
Rose.	Byb.	Biz.	Rose.	Byb.	Biz.	Rose.	Byb.	Biz.

It will be seen from the above that the Tulip is divided into three classes, but each of these is again divided into feathered and flamed flowers. (See fig. 5.) Feathered flowers are in most seasons more difficult to get; but a grand flamed bizarre is about the highest type of a Tulip. The ground colour must be either pure white or clear yellow. A feathered flower has the colouring finely pencilled round the margin, the base of the cup (see fig. 6) being pure and free from stain. In the flamed



(Fig. 6.) MODEL OF A TULIP.

flowers stripes of colour descend from the top edges of the flower, two-thirds of the way down the middle towards the bottom.

In planting, I make a small hole for the reception of each bulb, and place a little river-sand under and over it, leaving the top of the bulb about 3 inches below the surface of the ground. November is the best month in

which to plant, but some of the most renowned growers about Manchester delay the operation until December. They say—and perhaps they are right as far as their own district is concerned—that if the bulbs are planted late they begin to grow away at once, and are not so likely to be injured by the cold, wet soil. The root-action in November is rather sluggish, and the month is usually a wet one, the rain being but little above the freezing-point; still I believe the second week in November is the best time to plant about London; by that time the small tender rootlets are pushing from the base of the bulbs, and their top-growth has also begun. It is a good plan to keep the soil dry, and this may be managed by placing boards or frame-lights over the beds, or the loam may be kept under cover until the time of planting. The plants appear above-ground early in January, or, at the latest, before the end of the month; but the Tulip is perfectly hardy, and under ordinary circumstances does not require any protection. Covering the beds up with mats and canvas has a tendency to weaken the plants. We have Tulips that have been growing in the same place without any attention for more than fifteen years. The roots have not been disturbed during that time, and annually very strong growths are produced, and the flowers are perfectly formed in every respect. This case alone would show that the coddling system, with its continual covering and uncovering is unnecessary, not to say anything about old mats, canvas, or other covering material, with their attendant supports, which makes a garden look like the back-yard of a warehouse. An impression seems to prevail that florists are slovenly gardeners, and, truth to

say, some gardens that I have seen are not well kept; but others, and those florists of the highest standing, possess gardens that are beautifully kept. When the Tulips are planted in beds of rich earth, as I have recommended, the leaves produced are large and succulent; they also hold rain-water in the axils of the leaves; frost followed by rain freezes the water, and may have injurious effects.

About the end of April the flower-buds are well advanced, and to bring out the ground colour and markings of the flowers in all their pristine purity, the whole bed must be covered from frost, dashing sleet, or hail-storms. The plan that has been pursued by florists, as far as the memory of the oldest can be carried back, is to erect a stout framework, and have it covered with a movable canvas—the framework being sufficiently high to allow a person to walk with comfort underneath, the stout canvas to be rolled up with lines and pulleys. The same practice obtains across the Channel. I well remember coming unexpectedly upon a very fine bed in one of the public gardens of Paris; the Tulips were in full beauty in the first week of May, and they were planted and shaded from the sun in the same way that I have seen them in the gardens of Samuel Barlow, Esq., at Stakehill, Chadderton, Manchester.

I will now endeavour to describe a plan of my own, which I fancy might be improved upon, and would, if adopted by the Northern growers, bring their flowers in a week or ten days earlier than by the system now in use; and, further, they could plant out early in November, instead of a month later, fearing nothing from wet

or cold. The two beds, each about 4 feet wide, run parallel to each other, with an alley 18 inches wide between. I drive a row of posts into the ground on each side of this alley, these stand about 4½ feet out of the ground ; along the outer sides of the beds posts are also placed, about 3 feet 9 inches high. Along the top a rail is nailed; this serves to keep the posts steady and to support glass-lights, which we can spare from the Carnation frames about the middle of April, or earlier, according to the season. These lights are 6 feet long and entirely cover the beds, throwing the drip in rainy weather a foot over the bed. Round the outer sides of the beds I fix a permanent screen of stout shading, the sort I use being a lasting material made of linen thread. There is no need to put this up, until the blooms are sufficiently advanced to suffer from cutting winds. Then there is a space over the alley 18 inches wide, as it is not intended that the lights should meet in the middle; and to save the bloom from injury on frosty nights I merely sew a few mats together, end to end, and a man can roll these up, or unroll them, as fast as he can walk along the alley. Any Tulip grower can see at once that these lights, which are always on, must be a sufficient protection from frost, and they do not keep the light or heat of the sun from the plants, as the shading does, and a deal of trouble is saved in rolling up and unrolling the canvas. Should it be deemed necessary to remove the lights entirely, it can be done in a few minutes, only it requires two men to do it with safety. I may say that it is sometimes necessary to shade the glass during brilliant sunshine when the flowers are expanded. Very thin calico, or what is called

"tiffany," answers well for this. A length of it three feet wide will be sufficient, stretched over the glass when the sun shines directly upon it. No sticks are required to support the stalks, as when well grown these are stout and elastic carrying the blooms erect, and when the flowers open, the interior can be seen without touching the blooms with the hand. I ought not to omit to mention that it is almost necessary to mulch the surface of the beds over with rotted manure. This must be put in amongst the plants with the hand, taking care not to injure the leaves during the operation. If it is necessary to water the beds, this should be applied through the rose of a small water-pot, holding the rose near the surface of the ground, as the water ought not to be splashed over the leaves.

During the last Tulip season Mr. Barlow tried the plan of covering the beds with glass-lights, but only partially, as he did not put on the lights until the beginning of April. The Rev. F. D. Horner, of Kirkby Malzeard, Ripon, has much improved upon it, by building a light glass structure to cover his Tulip beds. By this plan his flowers were open fully fourteen days earlier than they otherwise would have been, and the growth of the plants, as well as the purity of the flowers, were much superior to anything ever seen before. Indeed, Mr. Barlow, one of our best growers and judges, said that Mr. Horner's flowers were superior to anything he had produced during a period of thirty years.

The following list of varieties has been kindly placed at my service by Mr. Barlow, and it will be found to comprise all the best flowers, old and new :—

Feathered Bizarres.—Commander (Marsden). A fine, heavy feathered flower; a great improvement on Catafalque Superior. Demosthenes (Headly), resembles the old Royal Sovereign. Dr. Dalton (Hardy). Garibaldi (Ashmole); rich yellow, with bright chestnut-brown feather. George Hayward (Lawrence); this is a good flower, but inconstant, coming as often flamed as feathered. John Radcliffe (Yates). Sir Joseph Paxton (Willison); a grand flower; generally wins premium in its class. Storers No. 4. Sulphur (Britwhistle). Target (Yates).

Flamed Bizarres.—Ajax (Hardy); a noble flower, and a great improvement on Polyphemus. Excelsior (Hardy); in the style of Sauzio; a very pure flower, and unequalled as a breeder. Dr. Dalton (Hardy). Dr. Hardy (Storer); a red bizarre, and superior to Everard. Lord Delamere (Hardy); a high-class flower, with most refined marking. Masterpiece (Slater); a black feather upon a rich yellow ground. This is also a fine feathered flower. Orion (Storer). Sir J. Paxton (Willison); fine as a feather, but it is best as a flamed flower. Surpass Polyphemus (Barlow); the base of cup and stamens are always pure. This has never come feathered. Sulphur (Britwhistle). William Lea (Storer); markings almost black, on a rich yellow ground. William Wilson (Hardy); a good constant flower.

Feathered Byblœmens.—Adonis (Headly); a fine constant variety. Alice Gray (Walker). Bessie (Hepworth); colour nearly black, on a good white ground. A noble flower. David Jackson (Jackson); grand black feather, on the purest white ground. Friar Tuck

(Slater); fine, both feathered and flamed. Won premium as best feathered flower at the "National." Martin's 101; very pure and correct in its marking. A great favourite. Mrs. Cooper (Boardman); finest flower in existence; constant when well grown. Nulli Secundus (Hepworth). Nimbus (Hardy); a grand flower, either feathered or flamed. From the same seed pod as Talisman. Talisman (Hardy); a fine dark flower, with white feather. William Bentley (Groom); beautiful feather.

Flamed Byblœmens.—Adonis (Headly); better as a flamed than a feathered flower. Attraction (Walker). Bacchus; Dutch, a perfectly pure flower; never seen feathered; markings very correct. Carbuncle (Headly); resembles Adonis so much that some persons think it a fine flamed strain of that variety. Duchess of Sutherland (Walker); a charming flower, beautiful dark purple flame, on pure white ground; unsurpassed in purity. David Jackson (Jackson); grand as a flamed flower. Friar Tuck (Slater). John Peacock (Slater); a very fine flamed flower. Talisman (Hardy); best as a flamed flower. The finest in existence.

Feathered Roses.—Annie Macgregor (Martin); fine as a feathered, but best as a flamed flower. Charmer, Mabel, Mrs. Lomax, and Pretty Jane (Martin); all one flower. The colour is bright rosy-red, on a pure white ground. Charmer is a fine feathered strain. Heroine, a fine old variety. The colour is deep rose, white unsurpassed in purity, and the feathering boldly laid on. Industry (Lea); perhaps the finest rose in cultivation; colour bright carmine scarlet, on the purest of white

grounds. Won premium at the National Tulip Show as the best feathered flower in any class. Lady Grosvenor (Slater); feathered and flamed, very good; also one of the best rose breeders. Lady Wilton (Martin); a fine rose in the style of Heroine, but shorter in the cup. Madame St. Arnaud; very bright carmine scarlet; very effective. Modesty (Walker); very fine brilliant scarlet, on a pure white ground. It is worthless in a flamed state. Nanny Gibson (Hepworth); brilliant scarlet feather, on pure white ground; perhaps the finest feathered rose ever raised. Whittaker's Seedling; a fine feathered rose. Won premium at the "National" recently.

Flamed Roses.—Adair; a fine old variety, but still far from being superseded. Annie Macgregor (Martin); brilliant scarlet, on pure white ground; the best flamed rose. Charmer, Mabel, Mrs. Lomax, and Pretty Jane (Martin); all of these are found in the flamed state. Lady Sefton (Martin); a very bright carmine scarlet flower of high-class quality. It is quite unique in its way, and second only to Annie Macgregor. Mrs. Barlow (Hepworth); very fine rose; in the breeder state quite indispensable. Triomphe Royal; a good old flower. Sarah Headly (Headly); dark rose, petals of great substance, and the flowers are, consequently, very persistent.

Breeders.—These are the seedling forms of the Tulip before they are broken or rectified. Breeders are self-coloured. Bizarre breeders have a yellow base, and the body of the flowers vary from light brown to dark *chocolate*. Byblœmen breeders have a white base, with

a body colour of various shades of purple and lavender. Roses have a white base, with a body colour of rose or red of various shades. The necessary qualities of a breeder are purity of the base and stamens.

Bizarres.—Ariosto (Groom). Dr. Hardy (Storer). Excelsior (Hardy); the finest breeder in the class. Horatio (Headly). Orion (Storer). Storer's No. 4 & 6. Sir J. Paxton (Willison).

Byblœmens.—Alice Gray (Walker). Ashmole's 112. David Jackson (Jackson). Glory of Stakehill (Ashmole). Martin's 117. Miss Hardy (Hardy). Talisman (Hardy).

Roses.—Annie Macgregor (Martin). Lady Grosvenor (Slater). Lady May (Hepworth). Mabel (Martin). Mrs. Barlow (Hepworth). Nanny Gibson (Hepworth).



THE CHRYSANTHEMUM.

THIS is, perhaps, the most useful plant we have for producing flowers in November; and it is withal one of the easiest to grow. Like the Carnation and Picotee, it thrives well not only in the neighbourhood, but in the centre, of large towns and cities. It is worthy of note, too, that the Chinese or Indian Chrysanthemums have been cultivated in England for more than a century. Miller cultivated it in the Botanic Garden, Chelsea, and we have authentic information that a variety called the Tasseled Purple was grown at Kew in 1790.

In 1833 a new arrangement of the different sections was made by A. H. Haworth, Esq., F.L.S. This gentleman names and describes forty-eight varieties in the following sections:—

I. Ranunculus-flowered.

II. Incurved Ranunculus-flowered.

III. China Aster-flowered.

IV. Marigold-flowered, "resembling Double Cape Marigolds, in size and shape."

V. Tassel-flowered, "flowers very double, drooping, and resembling a tassel."

VI. "Half double tassel-flowered."

The late Mr. John Salter, of Hammersmith, was the first to improve the form of the flowers of the Chrysanthemum, and to him we are indebted for many of the most symmetrical blooms at present in cultivation. This flower is so well adapted for all classes of persons that no apology need be made for introducing it here, even if the flowers had not been grown to the high point of perfection they have attained. There are several sections which will be arranged further on; and it may be said here that the cultural requirements of all of them are about the same.

Propagation.

By seeds to produce new varieties, and by cuttings to perpetuate existing sorts. The late Mr. Salter raised more seedlings than any one else in this country, but he did not save his own seeds. He told me that he sent the plants to Algiers, where they were grown, I presume, out of doors, and produced seeds freely. If seeds can be obtained, they may be sown on a gentle hot-bed, and the young plants be treated like any other soft-wooded plant. Cuttings may be put in between the first week in January and the end of March, or later. They strike very freely in a cold frame, or on a shelf in the greenhouse, but quicker in a hot-bed.

The Chrysanthemum is such a free, easily-grown plant, that it is almost unnecessary to go into minute

details. Suffice it to say, that the plants should be grown on without any check to their growth, from the time the cuttings are rooted. It is best to put one cutting in the centre of a small pot, and when the pot is well filled with roots, let the plant be shifted into a larger pot. I generally re-pot the plants three times, when it is intended to grow specimens. The Pompones flower in 8½-inch pots, and the large flowered section in 11½-inch. The best compost in which to grow them is four parts of turfy loam, off a medium clay, one part of rotten stable manure, and one part of leaf-mould and an 8-inch potful of pounded oyster shells to every barrowful of the compost. The specimen plants must be trained and stopped to get them into a dwarf habit, but the shoots must not be stopped after the first week in July. Many persons grow plants for the sake of producing about three blooms on each; when this is the case, it is best not to stop the growths at all, but to allow them to grow in their own way. In August the stem will form three growths, and in September a flower bud will appear at the end of each, surrounded by smaller buds. All the side buds must be removed, to throw the whole of the strength into the main buds. After the buds are formed the plants must be supplied with manure water, at every alternate watering; but let it be weak, as strong water from a dung-hill will kill the roots. With good management, flowers will be produced of the beautifully incurved section, from a foot to fifteen inches in circumference.

Greenfly is a very troublesome pest, but it is easy to destroy it by fumigating when the plants are under glass.

Out of doors they can be destroyed by dusting with tobacco powder.

What to Exhibit.

The Chrysanthemum is one of the most useful flowers for public exhibition, and Chrysanthemum Societies are very numerous about London and elsewhere. As exhibitions increase in number, exhibitors come to the fore in an equal ratio, and there is no falling-off in the quality of the flowers exhibited. Last year the exhibitions of cut flowers were very numerous; but all the sections were not exhibited, which is a pity. We ought not to lose any of them, and the old-established societies, such as the Stoke Newington, should include all in their schedule.

The large-flowered incurved section stands deservedly first. As many as twenty exhibitors staged stands of twelve blooms for one set of prizes. The experienced exhibitor is careful to select incurved varieties to place in his stands; some of the new aspirants for fame have not the knowledge which experience alone can give. For the information of such it may be as well to state that a stand made up of incurved, reflexed, and large-flowered Anemones, has not the least chance in a competition with stands which contain only incurved flowers. The terms of the schedule may be broad enough to admit them, but it is of no use appealing to that, the flowers themselves being eloquent enough. Useful lessons in staging cut flowers may be learned at some of the large exhibitions. Some stands exhibited in London last year from Liverpool contained flowers

as fine as have ever been grown; but the exhibitor threw away all his chances of success by not dressing the flowers, and by putting others in that were intrinsically bad, such as the most skilful dresser could not by any means bring up to the standard required by the florist.

There were some flowers that counted for nothing in the Liverpool stands. Fingal, for instance, a dark flower, was placed at the left-hand corner of the stand in the back row. Many exhibitors place their best flower in that position, and they are wise in doing so; but in the eyes of a judge, who acts by the recognised standard of excellence, Fingal would scarcely score a single point in a maximum of six to each flower. Let any one compare such a flower with Prince of Wales, or Prince Alfred, also dark flowers, and any one who has not had even one point of excellence pointed out, would select the refined, incurved flowers. Compare Mrs. Haliburton and Mrs. Geo. Rundle, two white flowers of distinct types. A good flower of the first named would not count in a stand, while the latter being incurved would be almost sure of the highest place. The same remarks also hold good in regard to specimen plants; incurved flowers are preferred, although many of the reflexed section make handsome specimens.

Specimens for Exhibition.

The usual way of growing specimens for this purpose is to pinch and tie out the young shoots until the plant is quite dwarf; and in the case of the large-flowered specimens, each shoot is allowed to carry one flower only, and each flower must have a stick

placed in the pot to support it. In some cases plants trained in this way are very handsome; but very often they are otherwise, the artificial system of training being too apparent. Pompones also have to be tied down to cause a dwarf habit, but this system of dwarfing may even here be carried too far. As a rule, it is better to allow the plants to grow in the way most natural to them, and with the aid of a few sticks and well considered pinching and training, the plants may be much improved by the cultivator, without bending and twisting the growths into a form that nature never intended they should have.

The question may be asked: Is there any room for improvement in the manner of exhibiting Chrysanthemum flowers and plants at exhibitions? Certainly, there is much room for improvement. Nearly all the plants exhibited near London are too severely trained; the growths are tied down and twisted during the summer to obtain an unnatural dwarfness, and this has also a tendency to dwarf the flowers. Some of the best specimens of the large-flowered section I have ever seen were obtained by pinching back the leading growth in May; some five or six shoots are thrown up; each of these should be supported by a strong stick, and the plants be allowed to grow naturally. Such plants would in the opinion of competent judges be placed before those which had been unnecessarily dwarfed, and which would be furnished with flowers probably not half the size. The time occupied in dwarfing the plants is another important consideration, and the result does not justify the time occupied. It is very desirable, too, to grow only

varieties that have incurved flowers for exhibition, and omit any varieties that would be considered hybrids. There are a sufficient number of sorts that come up to the florist's standard suitable for specimens, and judges would always give them the preference. At first there would be some difficulty in judging between the elaborately trained specimens and those which had been allowed to develop naturally; and it would be well to have an extra class in schedules, for a group of plants grown to show the quality of the flowers and the natural habit of growth. Some persons might show in this class who could not find time to grow the more artificially trained specimens. Some varieties of the Japanese section make good specimens, and a class for these grown in pots would prove an interesting feature.

As to the cut blooms, an alteration ought certainly to be tried, the long uniform rows of stands being very monotonous. A class should also be provided for cut flowers, with stem and leaves as grown. I have seen a very effective stand made up; the flowers were cut with stems about six inches in length, and the flowers looked very well indeed with leaves, over a surface of fresh green moss. It is not likely that exhibitors would show their flowers in that way unless the stipulations of the schedule compelled them to do so; the reason for this being found in the fact that it is very difficult (indeed, in some instances it would not be possible) to dress the flowers unless there are means used to hold up the outer petals, and for this purpose small wooden cups are used with a hole, through which the stems are thrust; but this plan would be impossible unless the flowers were

divested of foliage. The Japanese section ought certainly to be exhibited with foliage as grown. The large-flowered Anemone section should be exhibited the same as the Japanese, and so ought the reflexed flowers belonging to the large-flowered section, which cannot be exhibited with the incurved forms. Anemone Pompones ought to be exhibited in triples; they are a very good addition to the show, and are interesting subjects to many.

The following lists comprise the best varieties in cultivation at the present time, and they are arranged in sections.

Section I.—Having the petals incurved, and forming in many instances a perfect sphere. These are the best adapted as cut blooms for exhibition. Abbé Passaglia, Alfred Salter, Antonelli, Aureum Multiflorum, Barbara, Beauty of Stoke, Bella Donna, Beverley, Cherub, Donald Beaton, Dr. Brock, Empress of India, Eve, Emily Dale, Formosum (white and yellow), George Glenny, General Slade, Golden Beverley, Golden Empress of India, Golden Dr. Brock, Golden Eagle, Golden John Salter, Golden Queen, Hero of Stoke Newington, Isabella Bott, Jardin des Plantes, John Salter, Lady Slade, Lady Hardinge, Lady Talfourd, Le Grande, Little Harry, Miss Mary Morgan, Mr. Gladstone, Mrs. George Rundle, Mrs. Dixon, Mrs. Heale, Prince Alfred, Prince of Wales, Princess Beatrice, Princess of Teck, Princess of Wales, Queen of England, Rev. Joshua Dix, Themis, Venus, Virgin Queen, White Globe, White Eve and White Venus. There are fifty varieties in the above

selection, and any one intending to exhibit twenty-four varieties ought to grow them all, as some varieties which stand in the front rank one season, may be of indifferent quality the next. A few of them are always to be depended upon.

Section II.—Varieties best adapted to grow into exhibition specimens. Aureum Multiflorum, Dr. Sharpe,



(Fig. 7.) POMPON: MODEL OF PERFECTION.

Empress of India, Eve, George Glenny, Lady Slade, Lady Hardinge, Mrs. Geo. Rundle, Prince of Wales, Venus, White Eve, White Venus, and Mrs. Dixon.

Section III. — Large Anemone-flowered varieties. These are very distinct ; the flowers are composed of an outer fringe of florets, and the centre is formed like a quilled Aster. Some of the varieties are very beautiful.



(Fig. 8.) EARLY FLOWERING CHRYSANTHEMUM.

Acquisition, Empress, Fleur de Marie, Gluck, Lady Margaret, Louis Bonamy, Madame Godereau, Miss Margaret, Mrs. Rithers, Prince of Anemones, Princess

Louise, King of Anemones, Georges Sand and Sunflower are the best of them.

Section IV.—Japanese. A few of these flower very early; the best are Elaine, Fair Maid of Guernsey and James Salter. Later flowering varieties are Bismarck, Bronze Dragon, Dr. Masters, Ethel, Fulgore, Fulton, Gloire de Toulouse, Grandiflora, Hero of Magdala, Jane Salter, Meteor, Meg Merrilees, Oracle, Purpureum Album, Red Dragon, Red Gauntlet, The Cossack, The Daimio, The Sultan and the Mikaido.

Section V.—Anemone-flowered Pompones. Antonius, Astrea, Astarte, Calliope, Dick Turpin, Firefly, Jeane Hachette, Madame Chalonge, Madame Montels, Marie Stuart, Miss Nightingale, Mr. Astie, Mr. Wyness, Perle, Sidonia, Zobeide.

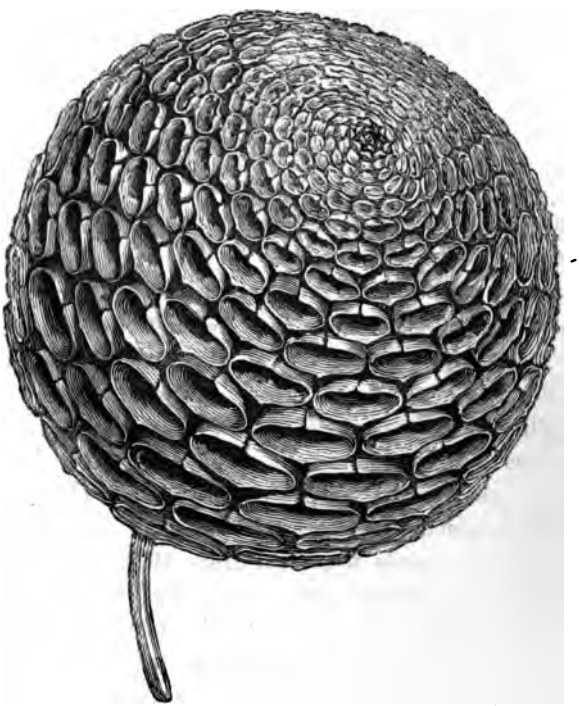
Section VI.—Pompones. (See fig. 7.) Andromeda, Aurore Boreale, Bob, Brilliant, Cedo Nulli and its brown, lilac and golden forms, Golden Aurore, Mdlle. Marthe, St. Michael, Mustapha, and Solomon. Trevenna and its varieties, though usually classed as Pompones, are hybrids, and ought not to be exhibited in the class for Pompones.

Section VII. — Early-flowering Chrysanthemums. (See fig. 8.) This is, perhaps, the most useful section for out-of-door culture. They bloom in September and October, and are useful as cut flowers. Their culture is simple, and in no way different from that recommended for any other out-door plant. The best varieties are Adrastes, Cassy, Frederick Pelé, Hendersoni, Illustration, Little Bob, Madame Pecaul, Madame Dufoy, Madame Pepin, Vanum, Precocité, Scarlet Gem and Sam Slick.

THE DAHLIA.

THIS is one of the most beautiful of autumn border flowers, and a splendid subject for autumn exhibitions. The more recently introduced varieties are truly splendid illustrations of what can be done by careful cross-breeding and judicious selection, to which must be added the devotion of certain enthusiasts to any special flower. D. Mirabilis is the reputed parent of the fine garden varieties of which the two illustrations (Figs. 9 and 10) may be taken as types. It was discovered in 1789, and named in honour of Dahl, a Swedish pupil of Linnæus. In May, 1804, seeds were sent from Madrid by Lady Holland, from which plants were raised and flowered in the gardens of Holland House the following season. The first double flowers were produced four or five years afterwards. In 1814 the Dahlia was very extensively cultivated, and continuous improvements were effected in the flowers subsequently. About the year 1830 there was quite a Dahlia mania, which continued for many years. In 1832 a very fine variety was raised by a Mr. Line, at Springfield, near Bromley, in Kent. This was

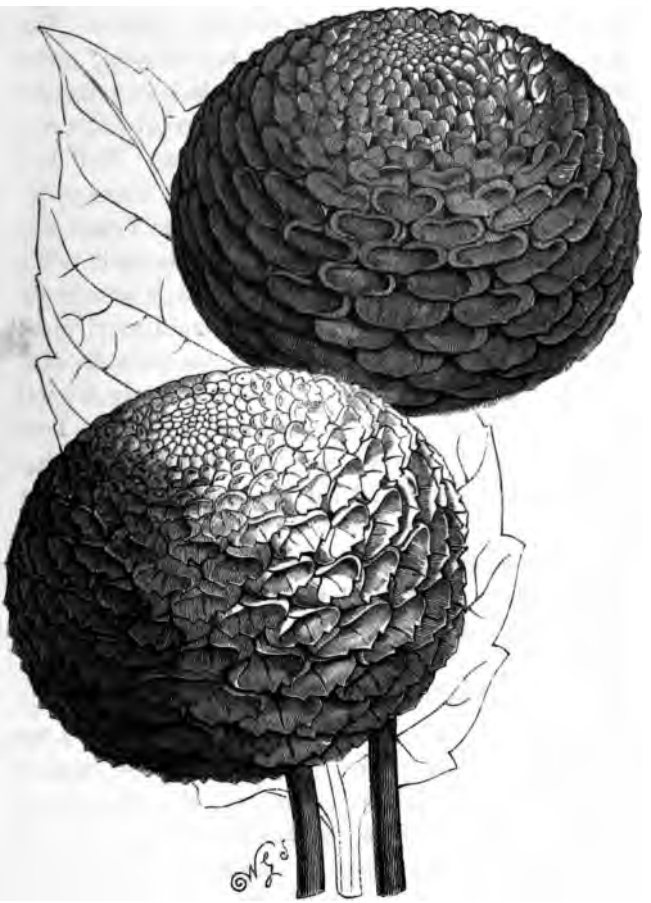
purchased by a Mr. Inwood, of Putney Heath, and sent out under the name of Springfield Rival. A few years after this Messrs. Turner and Keynes appeared as raisers and cultivators. Dahlia exhibitions were organized, and the improvement of the flowers after 1840 was very rapid



(Fig. 9.) LARGE-FLOWERED SHOW DAHLIA.

indeed. In that year a prize of £20 was offered at Cambridge for the best twenty-four blooms; and it was won by Mr. Turner. The same exhibitor also gained *the premium* prize in 1846, in London, and in both

stands were blooms of Springfield Rival. About this time the late Mr. John Keynes' (of Salisbury) name



(Fig. 10.) POMPON DAHLIAS

appears in conjunction with that of Mr. Turner. The first-named gentleman, writing some years later about his experience, said: "My first essay in Dahlia growing was made in the palmy days of that noble flower. The first really fine seedling introduced into Salisbury was a variety called 'The Queen,' which I had from my old friend Pothecary, of Upway, near Dorchester. This was the first light-edged Dahlia I had ever seen. Well do I remember going into Squibb's garden where it was growing to see this pet; and I dare say Charles Turner will remember the circumstance also, when I bring it to his recollection. There it was—and there it is now in my mind's eye, time, place, and circumstance as vivid as ever—the exact spot where it grew, the umbrella with which it was shaded, and its profusion of lovely flowers! It was worth a life of toil to raise such a Dahlia. Poor old Pothecary! He was one of our first great seedling growers, although he did not himself receive the credit due to his productions. . . . The first good Dahlia I ever raised was Ovid, the seedling root of which I sold to Mountjoy for £50. I think we have never seen a nearer approach to a blue Dahlia. Since that time I have never ceased to grow seedlings; and I am free to confess that the great charm of floriculture would be dispelled, if I had no seedlings to anticipate. But the question is asked: 'How do you manage to raise so many? We cannot save seeds, even if we let all our flowers grow, and give up showing for the purpose.' Now this is quite wrong, as sure as you leave many flowers on a plant, so surely will those blooms fail to produce seeds. You cannot have fine blooms and the

production of seeds at the same time. My own practice is this:—I leave my flowers pretty much to themselves until about the 15th September, making it a rule never to cut any plants for show, when I would sacrifice seed by so doing. About that date, I cut the plants to scare crows, leaving only the few flowers that may be coming into bloom, and these produce seeds in abundance. I sow my seed about the 10th of March, taking care that the pans containing the soil are placed in heat a day or two previously. Good seed is generally very thin. I care little for a plump seed." The seedlings should be pricked out as soon as they are large enough, and then be potted singly in four-inch pots, to be planted out in May with the others; the plants will, if well managed, flower the same season.

Propagation by Cuttings.

This is the usual way to increase the stock. The tubers should be planted close together in a box, amongst fine soil, and be placed in heat early in March, or later, according to the number of plants required. If only three or four plants of each variety are required, it will not be necessary to place the tubers in heat before the end of March. When the shoots are about two inches in length they may be removed close to the base with a sharp knife, or be snapped off with the finger and thumb. Each cutting should be potted in a thumb-pot, using fine soil for this purpose. The pots should be plunged in a gentle hot-bed, or in bottom heat in a propagating house. Dahlia cuttings throw out roots very freely, and few, if any of them, will fail. When the plants

are rooted, remove them to another frame or cool house, and in a week re-pot the plants into three or four-inch pots, and when they are well-established admit plenty of air. They are also propagated by taking the surplus side-growths during the summer and autumn from the established plants, and striking them in a cold frame as cuttings. They are potted into large sixty pots, and remain in the same pots all through the winter. They are shaken out of the soil in the spring, and are potted in fresh soil. The plants will push into growth best on a gentle hotbed.

Cultural Details.

If the pots become quite filled with roots before planting-out time, it is best to re-pot them in six-inch pots, as it is not possible that the plants can succeed if they are pot-bound. Let the potting material be good decayed turfy loam, leaf-mould, and rotten manure, in the proportion of four of the loam to one each of the others. The plants should be placed in a cold frame early in May, and they must be well protected by mats at night; but whenever the weather admits of it the lights should be entirely removed, nor should the plants be crowded too closely together; it is best to allow plenty of space between each. The Dahlia is a gross feeder, and takes up a considerable supply of water; the pots should never become quite dry.

A rich, deep and well-worked soil is essential to success, in producing the best exhibition flowers. I generally trench it at least two feet deep, working in a good dressing of manure.

The work of trenching ought to be done in the early autumn, before the ground is saturated with rain; and when the ground is dry in winter, the surface may be forked over to the depth of three or four inches, but it should never be touched in a wet state. When the time comes to plant out, the ground should be marked out with a line, and the permanent sticks be placed in the ground at once, and it is best to run a line on the top as well, so that they may be all of one height in the different rows; they must be driven well into the ground, so that they may stand the pressure of severe gales of wind which we usually have at the time when the plants are in full flower. The operation of planting is performed by taking about two spits of the ordinary garden soil out in front of the stick, and replacing it with a compost of turfy loam and rotten manure, in which the Dahlia is to be planted. The plants should be tied to the sticks at once, and should be regularly attended to as they increase in growth. I generally thin out all the side-growths except about four, and to do the plant justice each of these should be supported with separate sticks. There are two ways in which the shoots may be trained. That practised at the Royal Nurseries, Slough, is to place four sticks, one to each point of the compass; another is to place two sticks, one at each side of the plant, then fasten cross sticks to the upright ones, and tie the side-growths to them. Considerable attention is necessary when the plants are in full growth, the shoots must be tied up to preserve them from injury, and the earlier ties should be seen to as they frequently cut into the

stem. If the flowers are wanted for exhibition it is necessary to shade many of the varieties rather closely; for such, a simple plan is to drive a stout stick into the ground and nail a board on it about nine inches square, a slit is made in the board wide enough to admit the Dahlia stem, and the tips of the back petals of the flower rests on the board, which forms a convenient resting-place for an inverted flower-pot which is a very good shade, and is also easily obtained.

Insect Pests.

The Earwig is the most troublesome pest the Dahlia grower has to contend with. In hot, dry seasons their name is legion; they will sometimes eat the leaves, but prefer the delicate petals of our finest flowers. It is best to begin very early to destroy the pest. Place hollow bean stalks or the stems of hemlock open at both ends near the top of the plants; the insects feed at night and retire into the hollow stems at daybreak, whence they may be blown out into hot water in the morning. Another plan is to place some dry moss in the bottom of a small flower pot, and invert the pot over the top of the sticks; the insects like to shelter themselves in the moss, where they can be destroyed.

Thrips are very troublesome, and should be destroyed when they first appear, by syringing the plants with soapy water. If they get upon the flowers they leave white patches and marks. It is a good plan in hot weather to syringe the plants twice daily with rain-water to prevent the thrips appearing at all.

Select Lists.

The following is a list of the very best varieties yet sent out:—

Show Varieties.—Acme of Perfection (Downie); primrose. Alexander Cramond (Keynes); maroon shaded crimson, large and fine. Arbitrator (Fellowes); buff or fawn, suffused purple, perfect form, constant. Canary (Fellowes); the best yellow, large flower. Captain Webb (Turner); buff, good form, constant. Charles Lidgard (Fellowes; rich yellow, edged crimson, good either for garden or exhibition. Chris. Ridley (Turner); bright crimson fine form. Constancy (Keynes); yellow ground, edged lake, large flower. Cremorne (Eckford); yellow, tipped red. Earl of Radnor (Keynes); plum colour, large. Empress Maud (Keynes); white-edged purple. Figaro (Turner); yellow, edged and suffused, with bright red. Flag of Truce (Wheeler); white-tipped lilac. George Goodall (Keynes); orange scarlet. Her Majesty (Keynes); white, edged purple. Herbert Turner (Turner); French-white with soft lilac tinge, fine show flower. James Cocker (Keynes); purple, large, fine form. James Service (Keynes); intense crimson, fine. John Downie (Keynes); claret, good flower. John Greenaway (Fellowes); crimson, fine form. John McPherson (Keynes); violet purple, fine form. John Neville Keynes (Keynes); fine yellow. John Standish (Turner); bright red, fine show flower. John W. Lord (Keynes); shaded orange, buff. John Wyatt (Keynes); crimson scarlet. Joseph Ashby (Turner); shaded orange, fine. Julia Davis (Keynes); yellow, large and fine.

Julia Wyatt (Keynes); creamy white, large. Lady Gladys Herbert (Keynes); white, edged crimson. Leah (Turner); golden yellow, fine form. Louisa Neate (Keynes); delicate pink, fine. Marchioness of Salisbury (Keynes); white, tipped purple. Mrs. Boston (May); lilac. Mrs. Harris (Harris); white ground, lilac edge. Mrs. Henshaw (Henshaw); white, large and fine. Mrs. J. Downie (Keynes); white ground, edged, and shaded rosy purple. Mrs. Stancomb (Keynes); pale yellow. Mrs. Urquhart (Fellowes); white, tipped purple. Ovid (Turner); rich puce, a grand full flower. Paradise Williams (Keynes); claret, good flower. Picotee (Keynes); yellow ground, crimson edge. Prince Bismarck (Fellowes); puce, shaded purple, a large and fine flower. Queen of Italy (Fellowes); a peculiar shade of fawn, fine form. Rifleman (Keynes); scarlet crimson. Silvio (Fellowes); yellow, with red edge. The Countess (Keynes); light, edged lilac. Thomas Goodwin (Goodwin); dark maroon. Thomas White (Keynes); maroon, fine. Toison d'or (Turner); rich golden yellow. Victory (Keynes); shaded crimson.

Twelve best and most distinct Fancies.—Charles Wyatt (Keynes); rose, flaked crimson. Ebor (Goodwin); chocolate, maroon stripes. Enchantress (Keynes); creamy white, striped purple. George Barnes (Keynes); lilac, striped crimson. Henry Glasscock (Keynes); buff, crimson stripe. Maid of Athens (Keynes); maroon, tipped red and white. Miss Lily Large (Keynes); puce, striped and spotted crimson. Mrs. Saunders (Turner); yellow, tipped white. Oracle (Fellowes); deep yellow, striped crimson. Peacock (Turner); maroon, striped

crimson. Pauline (Turner); buff, tipped white. Wizard (Fellowes); fawn, striped maroon, and tipped white.

Dahlias for Bedding.—These grow from two to two and a half feet high. Drap d'or ; pure yellow. Flora McDonald; primrose. John Wyatt. Marguerite Bruant; white. Roustapand, yellow. Yellow Pet.

Bouquet Dahlias.—These have very small, neat, well-formed flowers, and are well adapted for bouquets, and ornamental as garden plants. Amazon ; yellow, edged crimson. Burning Coal ; yellow, scarlet tip. Dove White ; tipped rosy lilac, fine shape. Dr. Schwebes, scarlet. Frederick Rucker ; red, white tip. German Favourite ; crimson, edged lake. John Sandy ; orange, shaded yellow. Little Beauty ; crimson, tipped white. Little Dear; blush white, striped and tipped rose. Little Fairy; blush pink, spotted and striped rose. North Light; bright scarlet. Red Gauntlet; crimson. White Aster; very pretty. Lady Blanche; pure white, very fine (new).

Single Dahlias.—We are indebted to Mr. H. Cannell, of Swanley, Kent, for bringing prominently before the public some of the original types of the Dahlia. They had fallen into comparative neglect, although they were grown and valued in some old places in different parts of the country. I noticed growing in Penhryn Castle Kitchen-gardens, in 1878, immense quantities of D. Coccinea, each plant had scores of its pretty blooms, and formed an imposing sight, I was told by the gardener, Mr. Speed, that they were most useful as cut flowers for decorative purposes. They are easily grown and require similar treatment to the florist varieties. Some of the best are contained in the following list :—

Dahlia Paragon (see fig. 11) is a single form of D. variabilis. The colour of this fine species is dark maroon, with yellow centre, and it grows to the height of four feet. Lutea; bright yellow with an orange centre, three feet. Coccinea; scarlet flowers very freely produced, four to five feet. Imperialis; this species which grows about 12 feet high, flowers very late, and has to be moved into a conservatory to produce its flowers.



Fig. 11.) DAHLIA PARAGON

THE HOLLYHOCK.

THIS is the most stately of the flowers that has been improved by the aid of the florist. It is easily cultivated, and commands admiration by its striking appearance in gardens, especially when placed at a distance from the observer, or forming a background to other plants. Like many other flowers that have been brought to a high state of perfection, the Hollyhock owes much to one or two individuals not known to fame in any other walk of life. Mr. Charles Baron, a shoemaker, of Walden, was one of those village worthies who had a passion for a certain flower, and by careful selection and crossing of varieties he did for the Hollyhock what Richard Headly and George Lightbody did for the Auricula. But it was when men of large capital and enterprise, like Messrs. Paul of Cheshunt, Chater of Saffron Walden, and Downie and Laird of Edinburgh, undertook the raising of new varieties by cross-breeding and selection, that the greatest advance was made.

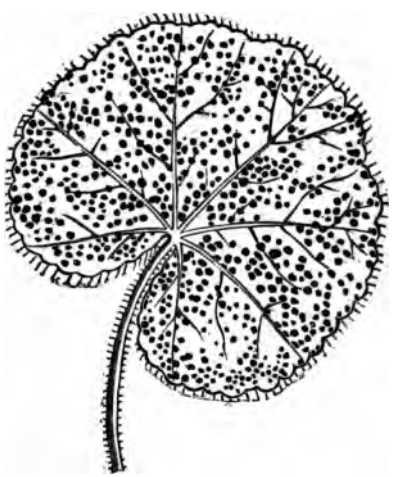
At some time or other in the history of every flower that has been long in cultivation, a period has come when

the public, or at least the flower-loving public, have displayed an amount of enthusiasm about it, perhaps more than it really deserved, that the passion for the flower has gone on to a certain height, and then the declension has been more or less rapid, according to the nature or fervour of the enthusiasm. It has been so with the Hollyhock: it does not occupy that place in our esteem which its merits deserve, and perhaps this is the natural result of its once occupying a higher position than it fairly deserved on its own merits. I am not prepared dogmatically to say so, for I have always admired the Hollyhock, and I think it fairly deserves a high position in certain gardens, public and private, where at present it does not even find a place.

About a quarter of a century ago almost every garden of any pretensions boasted of its collection of Hollyhocks, and exhibitions arranged especially for them were held in the capital cities of England, Scotland, and Ireland, besides many provincial towns. It is scarcely necessary to ask why this state of things was not continued. There is a fashion in flowers as there is in dress, and the idol of to-day stands a chance of being trampled in the dust to-morrow. One evident reason of the Hollyhock not being grown in some districts is the decimation of the plants by that destructive fungus, *Puccinia malvacearum*. This disease is peculiarly virulent in dry seasons, the fungus spreads over the leaves of the plants (see fig. 12), and quite destroys the softer parts, leaving the naked venation rustling in the wind, a melancholy spectacle. A strong solution of soft soap and sulphur, or Gishurst compound, has been known to check it; but sometimes the cure is

as bad as the disease. The most radical cure is to destroy the plants, and begin again with a healthy stock, taking care that the nidus of the disease is not left in the garden or in the frames where the plants are wintered.

In starting to grow Hollyhocks, it is just as well to see that the plants are healthy. If they are purchased in the autumn they must be wintered in cold frames, and the pots plunged in cocoa-nut fibre refuse. In January or February the plants must be re-potted; if they are strong 6-inch pots must be used, the compost being turfy loam,



(Fig. 12.) THE HOLLYHOCK FUNGUS.

with a fourth part of rotted manure added to it and a little sand. The ground should be prepared for the plants in the autumn by trenching it two or even three feet deep, and adding plenty of rich manure in layers from the bottom to within six inches of the surface. During fine

weather the surface should be forked over in the winter months, and at intervals of about a month; this is especially necessary in clay soils, and it is in such soils when well worked that the Hollyhock succeeds best. The plants should be planted out about the end of April, or earlier if the weather is favourable. I drive into the ground the sticks that are intended to support the plants; they should be strong and stand 6 feet out of the ground, and 18 inches into it: this plan is preferable to placing small sticks to the plants at first and placing the permanent one to them when the spikes are considerably advanced. When the plants are put out in the borders I like to place some good rich loam round the roots, into which they can work at once. As the spikes advance in growth they must be fastened to the sticks. In dry weather water must be copiously supplied to the roots, and a mulching of rotted manure will keep it from evaporating. One spike only should be grown to a plant if they are intended for exhibition, and all the side-growths must be removed. Some of the leaves on these lateral growths have leaf-buds at their axils; these must be used to make eyes to produce plants; about an inch or more of stalk is left with each eye; the leaf and a portion of the leaf-stalks are removed, the eyes are then inserted singly in thumb-pots, with a portion of the leaf-stalk and the top end of the bit of stalk showing above ground. Place the pots in a frame in a gentle bottom-heat, but do not apply too much water or the eyes will rot. In a week or less the shoot will appear above ground, roots will speedily be formed; and the plant must be potted into large 60's when the thumbs are well filled with roots.

If the spikes are to be exhibited it is best to cut the top off, and the skilful cultivator will manage it so that the flowers just under the cut will be expanded on the day of the show. If single blooms are to be exhibited only it is still desirable to cut off the tops of the spike to increase their size. It is not always desirable to reduce the number of spikes on a plant to one, nor is it always best to cut off the side-growths. When the plants are put out on wide borders with Dahlias and other tall-growing plants, and the object is to have a long continuance of flowers or to fill up a certain space, then by all means allow the plants to grow freely, and merely remove decaying flowers as they go off.

Seeds should be saved from the best flowers only, and it is very desirable that they should be crossed with other good sorts to obtain new varieties. I have saved seeds from the best sorts in cultivation without crossing the flowers, and out of many dozens fifty per cent. of them were neither better nor worse than the parent, and there was scarcely any alteration in the colour of any of them. Out of fifty plants grown from seeds judiciously crossed there is more chance of getting a new and good flower than there is from five hundred where no artificial impregnation has taken place. The seeds may be sown as soon as they are gathered and dried, but I prefer to keep them until the end of May the following year; and the plants should be planted where they are to flower about the end of August. They will make a grand display the following season. The stalks should be cut off four or six inches above the surface of the ground as soon as the flowering period is over. The more choice sorts should

be potted into 7 or 8-inch pots, and the others will be safe if they are planted out in a cold frame.

Although the Hollyhock is quite hardy in this country, it is absolutely necessary to treat the plants as described to obtain cuttings early in the year following; early-rooted spring cuttings are quite indispensable to the exhibitor. These will come in for the late shows, and the plants propagated the previous autumn from eyes will flower quite a month earlier. In the South such plants will be at their best in an ordinary season about the first or second week in August, some earlier and some later, as autumn-struck cuttings are more erratic in their flowering than plants produced from cuttings or root grafts in the spring. It must be understood that the Hollyhock is a perennial, and plants will continue to produce spikes from the same rootstock and without removal for many years, but they will not be of anything like such good quality as those from plants managed as detailed above. It may as well be stated that some of the very finest double flowers in the South will not open kindly north of the Tweed, but flowers that succeed well in Scotland may be safely trusted to do so in any part of Britain.

The insect pests which infest the Hollyhock are red-spider and thrips, the former being the most troublesome. It attacks the leaves on the under sides and very soon extracts the juices, causing the flower to become yellow. It can be destroyed by using soapy water to which has been added a little tobacco liquor; if the plants are attacked before being planted out, they may be dipped in a pail, but if they are out on the border it will be necessary

to syringe them, directing the water upwards. Thrips may be destroyed in the same way, but this pest does most damage to the flowers, and should not be allowed on the plants at a time when they are opening. It may be as well to state that the dreaded Hollyhock fungus, *Puccinia malvacearum*, has nearly decimated the collections of Hollyhocks in the south and other parts of England, and some of the best varieties are nearly if not quite lost to cultivation. There are a few growers, some of them near Newcastle-on-Tyne, and probably in Scotland, who have collections of named sorts. It is pleasing to record the fact that the disease is disappearing this year (1879), whether from climatic influences, or other causes, it is difficult to say. The following is a selection of the best and most distinct varieties :—

Acme ; peach. Andrew Goodfellow ; rosy crimson. Black Gem ; deep maroon. Carus Chater ; reddish crimson. Countess of Kellie ; reddish salmon. Competitor ; purple. Crimson King. David Henderson ; rosy crimson. David Marshall ; rose. Eleanor ; rose. Eclipse ; rosy red. Frank G. Dougall ; purple. George Johnstone ; rosy crimson. Golden Drop ; rich yellow. Incomparable ; apricot. Joshua Clarke ; rosy red. John Gair ; reddish peach. Junia ; primrose. Joseph Norval ; reddish salmon. Marvellous ; orange buff. Mr. Chater ; yellow, tinged-red. Mrs. T. H. Douglas ; pale rose. Mrs. Downie (improved); rich yellow. Model ; primrose. Nonpariel ; maroon purple. Octavie ; rosy pink. Octoroon ; dark. Primrose Gem. President ; yellowish buff. Ruby Queen, Scarlet Gem, War Eagle ; blackish maroon.



THE GLADIOLUS.

THIS is a very beautiful genus, with the aid of two or three species of which, and varieties raised from them, our gardens can be made gay from May till October. Certain species have been designated "Sword Lilies," from the shape of the leaves; indeed, the specific name has been derived from gladius, a sword, on that account. G. Colvillei and G. Colvillei albus are very useful for decorative purposes in the herbaceous border. G. floribundus, G. cardinalis, G. ramosus, and G. brenchleyensis, are all useful plants that may well be cultivated in the smallest gardens. But it is in G. gandavensis and its hybrids that the highest quality as regards the shape of the individual flowers, substance of petal, and diversity of colour, is to be found. The pure white flowers with just a touch of colour at the base of the lower petal, and the different shades of rose, light purple, pink and blush, are delicately beautiful; crimson, deep red, scarlet and rich purple, are also frequently found. The Gladiolus is well adapted for exhibition purposes, and when the spikes are arranged on stands with the colours harmoniously blended,

they have a very striking effect, and make a feature that should always be introduced at autumn exhibitions. It may be a question whether horticultural exhibitions encourage gardening in the way it ought to be encouraged, but there is no question at all about the fact, that when prizes are offered for flowers to a large extent, many more persons become interested in them besides the exhibitors. The reason of this is easily perceived. The general public see them on the exhibition table grown to as high a state of perfection as the present knowledge of their culture allows, and others see the interest taken in them at the places where they are grown.

Most of the species have been introduced from the Cape of Good Hope, and suffer in our climate from cold rains in the autumn; indeed, many of the more delicate varieties are killed outright, and others are so crippled that it requires considerable enthusiasm to continue their cultivation. I used to grow between two and three thousand seedlings every year, and found that they did much better the first year or two, than the named varieties of other raisers, but after that there was always many losses amongst them.

One great value of the Gladiolus is to furnish large vases with cut flowers, where they have a fine effect intermingled with other flowers and fronds of the commoner hardy ferns. When the conservatory is bare of flowers, a few spikes put in bottles of water have a good effect; but the bottles should be hidden with the foliage of other plants. In order to have a succession of flowers for as long a period as possible, it is necessary to pot some roots about the end of January, in light, moderately rich soil·

Three roots may be potted in a 7-inch pot, the pots to be plunged in some light material in a cold frame, and when roots have been formed place the pots near the glass in a warm greenhouse. If this cannot be done let them remain in the frame, and when the plants grow too tall for it, they may be plunged in a warm position out-of-doors, to be removed to the greenhouse when the flowers appear. The bulk of the collection, however, must be grown in the open ground, and to obtain such spikes as are shown by Messrs. Kelway, of Langport, and others, the ground must be well cultivated and richly manured. They certainly do best in rather light soil, and the best manure is equal parts of that procured from the stables and cow-houses, which should be thrown together in a heap for two or three weeks before using it. None of the manure should be placed near the roots; I place one layer about 18 inches below the surface and another 9 inches. This can be done by trenching the ground in October, and during winter the ground should be lightly forked over three or four times to the depth of 6 inches. If the ground is sufficiently dry I plant out the first lot early in March, and for succession plant a batch every fortnight until the end of May. The way I plant them is to draw a drill as for peas, then plant the roots by placing some sand under them, and a little over the top, just enough to cover the corm. I then fill up the drill, covering the crown to the depth of 2 inches with pure rotted maiden loam, chopped fine. The plants very soon appear above ground if the weather is mild, and they grow rapidly. The plants also require a good supply of water when the dry weather sets in. I mulch

the surface of the ground with rotted manure to keep the soil moist, and also to maintain a more equable temperature at the roots. As soon as the flower-spikes appear sticks must be placed to the plants to prevent injury from the wind; if they are not supported in time the broad leaves hold the wind, and the plant snaps over at the crown of the corm; if this does not happen the roots are much disturbed by south-west gales.

Amateurs and others who take up the culture of the Gladiolus for the first time must make up their mind to meet with many disappointments. The purchasers of new Roses, Phloxes, Pelargoniums, or, indeed, almost any class of florists' flowers, if they do pay a high price for them, it has only to be done once, losses seldom occurring if ordinary care is taken of them. Not so with the grower of Gladioli. I have planted annually large numbers of roots of new varieties received direct from Paris, with the result that nearly 50 per cent. died off the first season, and the remainder did little good afterwards. That happened in 1875, with the worst lot that I ever imported. The grower must make up his mind to have a certain number of losses yearly, but it requires a philosophical temperament to sit down calmly and see roots that cost 10s. each dying gradually before one's eyes. However, there are enthusiasts that make nothing of such trifles, and who will the more highly value those spikes that arrive at a high state of perfection.

Seedlings are easily raised, and as many of them will give flowers as good as, or better, than their parents, it is not wise to trust too much to named varieties. I have raised a large number of seedlings annually for a

number of years, and do not find it much trouble. The seeds are sown in 7-inch pots in April, the pots plunged in a dung frame with a gentle bottom-heat. In two weeks the seedlings appear above ground, when air is admitted more freely. When the plants have grown two or three inches high, the lights may be removed altogether. The pots must be well attended to with water during the summer months, and by the end of the season each plant will have formed a bulb varying in size from a marrow-fat pea to a hazel-nut. I plant these out in the same way as the old roots ; each bulb will form a new plant, and send up a strong flower-spike the same season.

I do not know whether it would serve any useful purpose to say much about new or old varieties. I found that many of the new sorts introduced at high prices differed but little from those that had been introduced in previous years. I allude now to the continental sorts, as they only are introduced in quantity ; but my own impression is that neither the quality of the roots nor of the new flowers that we receive, are so good as they were five or six years ago. This may be owing to the influence of the seasons, as the Gladiolus does best with plenty of heat and sunshine in summer. The new varieties exhibited by Messrs. Kelway and Son, of Langport, Somerset, are a great advance. If those varieties are placed side by side with M. Souchet's, it will be found by comparison that the English-raised sorts are in no respect behind them. It now remains to be seen whether Messrs. Kelway will be able to introduce them to the public in a condition in no way deteriorated from the state in which they first flowered in their hands. I have raised many good sorts,

and have received nearly a score of First-Class Certificates for them, but after they were grown for three or four years the plants degenerated so much that I never felt justified in asking any nurseryman to introduce them; and although the roots are quite sound, I am certain that they would not give satisfaction to the purchaser. My own opinion is that the Gladiolus hybrids of gandavensis degenerate in the climate of England, and the only way to maintain a collection in the highest state of perfection is to raise your own seedlings. But it will also be necessary to save your own seeds, which must be obtained from the best varieties at present in cultivation, carefully hybridised. A few of the very best sorts raised in France are Armide, De Mirbel, Lacepede, Leda, Meyerbeer, Nestor, Octavius, Madame Desportes, Horace Vernet, Orphée, Climène, Giganteus, Hercule, Lulli, Madame Furtado, Shakspere, Murillo, and Norma.

The following is a selection of the Messrs. Kelway's best flowers; most of them have received First-Class Certificates from various horticultural societies :—

Actæon; flesh, rose blotch. Ada; salmon red, flaked carmine. Agnes Mary; white, violet stripe. Agrius; salmon pink, flaked red. Arimus; claret, flaked purple. Ball of fire; scarlet-crimson. Beauty of England; white, yellow blotch. Belgica; flesh, veined lilac. Brennus; crimson maroon, white centre. Buteo; rose, white centre. Claribel; pure white, violet stripe. Dercyllus; rosy pink, flaked carmine. Doctor Hogg; rosy lilac, white centre. Doctor Woodman; salmon, flaked lake. Duchess of Edinburgh; purplish rose, carmine stripe, very fine flower. Egyptian King;

maroon, violet stripe. Eusebia ; crimson, white centre. Eusebius ; scarlet, white centre. Felix ; crimson, flaked carmine. Grace Darling ; rose, flaked maroon. Hemon ; yellow, flaked red. Henry XIV. ; white, tinged lavender. James Kelway ; crimson, with white stripe. Lady Bridport ; blush, flaked carmine. Lassia ; scarlet crimson, violet stripe. Lord Petre ; orange crimson, and carmine flake. Magnificent ; scarlet, flake carmine. Medina ; white, shaded rose. Miss Selway ; crimson and white. Mr. Derry ; amaranth, flaked purple. Mr. Bates ; white, flaked purple. Mrs. Kynaston Mainwaring ; dark red, and white spot. Neocles ; white, purple blotch. Orange Boven ; buff, flaked sulphur. Pheneus ; crimson, violet centre. Phillis Stuckey ; rose, white stripes. Pictum ; salmon scarlet, flaked carmine. President ; cerise, veined carmine. Queen Mary ; white, tinted lavender. Rev. M. J. Berkeley ; orange scarlet, flaked carmine. Sir George Nares ; purplish crimson. Sir Massey Lopes ; orange rose, light centre. Sir Thomas Symonds ; rosy lilac, white throat. Victory ; crimson, purple centre. Yellow King ; yellow, flaked with carmine.

THE POLYANTHUS.

(*Primula acaulis.*)

THIS is evidently a variety of the common Primrose; for although the normal form of that lovely flower is not found with its flowers in a truss or umbel, as soon as it is brought into cultivation and successive generations have been raised from seeds, the flowers are produced in trusses. The Polyanthus had shared the fate of many other old-fashioned flowers, and, until the last few years was not in much request. A demand has now, however, sprung up for them, and it is found that the old varieties, the delight of an intelligent section of our predecessors, cannot be purchased. A guinea a plant is considered cheap for some sorts, and others are only to be obtained by the influence of friends, near such old-fashioned towns as Middleton, in Lancashire. Although the very finest varieties of the Polyanthus are flowered in pots, it is best not to grow them in such a confined space all through the season. Being perfectly hardy, they have a fine effect when planted out in lines, beds, or masses, in a shady position; but by this, it must not be understood

as a place overhung by the branches of trees, and in soil that has been exhausted by their roots. They do well on the north side of a low wall or hedge, or in a similar position where the sun does not shine upon them during the hottest part of the day. With a good depth of soil, Polyanthuses will grow fully exposed to the sun, but they must be sprinkled every day in dry, hot weather with water, to prevent red-spider, which is one of their most desperate enemies, from attacking them. In the north of England and in Scotland, the Polyanthus thrives much better than it does in the south, and does not require nearly so much care and attention.

A cheap and easy way of obtaining a collection is to purchase a packet of the best seeds, which may be obtained for about a shilling. Sow the seeds about the end of April, if they are to be sown in pots or pans, and to be placed in a gentle hot-bed. I find the seeds vegetate most freely in a hot-bed, where the temperature of the plunging material just feels warm to the hand. The seeds should be sown on a smooth and level surface, and be just covered with fine soil, and a little damp moss laid over the surface to keep the soil moist until the seeds vegetate. If the soil should become very dry after the seeds have begun to vegetate, but before they appear above ground, the largest proportion will die. When the plants are large enough to handle, plant them out in boxes about two inches apart, and, as soon as the plants have quite filled the space, they may be planted out in the place where they are to bloom, a space of six inches being allowed between each plant. If the ground is occupied by any other crop, they will do well if planted,

say, 4 inches apart, in any corner until the ground is ready, but I like them to be in their permanent quarters by the end of October, at the very latest. If the ground is deep, and moderately well manured, the Polyanthus will succeed in almost any kind of soil, but they certainly give the best results when it is of a moderately clayey nature. Those who admire the Polyanthus, do so most intensely, and to such it is very interesting to watch the seedlings bloom, which most of them will do the following April.

The fancier would not purchase seeds; he would save his own from flowers that had been carefully fertilized. It has been supposed by some of our leading scientific men, that Mr. Darwin was the first to recognize the relative uses of the pin-eyed and thrum or moss-eyed Polyanthuses. That Mr. Darwin did make some discoveries on his own account I can fully believe, but it is equally certain that the Lancashire silk hand-loom weavers—of which old David Jackson, of Middleton, may be instanced as a type—knew the practical value of them, probably before most of us who are now alive saw the light. These old and patient workers had a high standard (which had been agreed upon by mutual consent), to work up to; and if they raised any that did not come up to that, they were rejected. So high was the point, that perhaps not one plant in five hundred would be worth retaining as a named variety.

The following are the properties of a perfect Polyanthus:—The flower stem should be strong and elastic, from 4 to 7 inches high. The footstalks of the pips should be stiff, and so proportioned as to length that

all the pips may have room to show themselves, without lapping over each other, and form a close and compact truss (see fig. 13), of not less than seven in number, and all alike as to colour and property; the calyx should not be so long as to show itself at a front view of the pip. The foliage should be healthy and almost cover the pot.

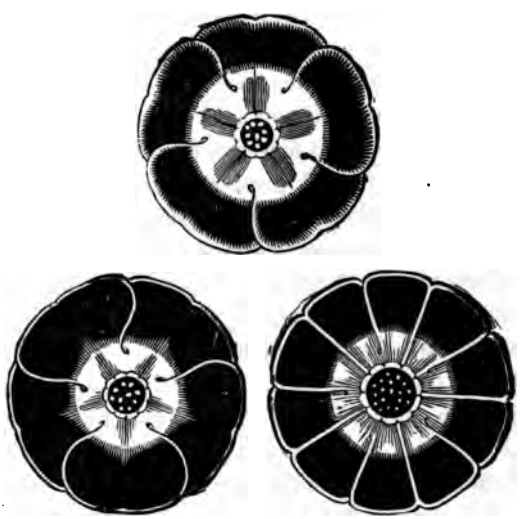
The pip: This should be large, quite round, and perfectly smooth at the edges, without notch or serrature,



(Fig. 13.) A POLYANTHUS TRUSS.

and lay perfectly flat (see fig. 14). The tube should not exceed one-third the diameter of the pip; it should be of a fine yellow, perfectly round, and well filled with the anthers. The eye should be perfectly round, of a bright, clear, rich yellow, forming a complete circle, and not less than twice the width of the tube all around it; the

petals should not cut into the eye. The ground colour should be wholly of a bright, rich, dark crimson, and not paler near the edges of the petals; and should not be made more than the width of the eye all round the tube, and regular on every side of the eye. The edging should be of a fine lemon yellow, not more than one-third the width of the tube, and regular on every side of the ground colour, and go through the division of each limb down to the eye.



(Fig. 14.) POLYANTHUS PIPS.

The old growers take for a seed-bearing parent a plant having all the above properties, except that it is pin-eyed (that is, one having the anthers near the base of the tube, and the stigma protruding from its mouth). A first-rate flower must also be chosen for the pollen parent,

but it must be thrum-eyed. The pollen must be removed from the anthers of this flower to the protruding stigma of the female parent, with a small camels-hair brush. It will be necessary to do this every day until all the flowers in the truss have been fertilized. Cheshire Favourite is one of the best-named sorts to use as a pollen parent, and it ought to be used on a flower with a dark ground colour. Lancer would be a good red-ground pollen parent. Buck's George the Fourth is a grand flower for a pollen parent, and should be used on a flower with a crimson ground.

The seed ripens in August, and should be sown as soon as it is ripe, or it may be kept until the following April. It is usual to flower the choice-named sorts in pots. Some of the old growers recommended dividing and potting the plants about the end of May, but this may be done at any season almost. I prefer, after a few years' experience, August or September. The compost should be of good, fibrous, clayey loam. To five parts of this add one of rotten cow manure, one of leaf mould, and some sharp river sand. The plants should be broken into single crowns before they are re-potted; and 4 or 5-inch pots are the most suitable. Drain the pots well with broken oyster shells or pot sherds, and pot firmly. When they are potted, place the plants in a frame and shade from the sun until they are established; the lights must also be kept rather close. Careful attention must be given to watering, and by the end of October they will be well established in their pots. After this period much less water will be required, and just sufficient should be given in winter to keep the soil moist, and in

frosty weather none at all. The best place in which to bloom the plants is a low house or frame. They flower rather earlier than the Auricula, and if required for the Auricula exhibitions about the end of April, the plants should be placed in a frame, with their backs to the south, from the first week in February. During frosty nights mats should be placed over the frames, for if the flowers are not so easily injured by frost as Auricula flowers, still they do suffer, and do not retain their beauty and freshness after being frozen. Many of the very finest named sorts have been lost to cultivation owing to neglect; still there are some of them in existence, and they are not only valued for their intrinsic beauty, but also because they were grown and valued so many years ago.

The following list includes some of the named sorts that were grown fifty years ago, and a few that are of more recent introduction :—

Alexander (Pearson); Bang Europe (Nicholson); Beauty of England (Maud); Black Prince (Wood); Cheshire Favourite (Saunders); Defiance (Timmin); Duke of Wellington (Smith); Exile (Crownshaw); Formosa (Burnard); Formosa improved (Saunderson); George the Fourth (Buck); George the Fourth (Waterhouse); Invincible (Crownshaw); Jolly Dragoon (Eckersley); King (Nicholson); Kingfisher (Addis); Lancer (Bullock); Lord Crew (Clegg); Lord Lincoln (Cox); Lord Nelson (Park); President (Hilton); Prince of Orange (Cartwright); Prince Regent (Cox); Princess Royal (Collier); William the Fourth (Barker); William the Fourth (Saunderson); Rev. F. D. Horner (Jackson).

THE RANUNCULUS.

(*Ranunculus asiaticus.*)

It is many years since I saw a bed of this flower in full bloom, but with the revival of other old-fashioned florists' flowers, the Ranunculus must also come to the front again. It is certainly deserving of cultivation in the largest or smallest of gardens. There is no garden so small but might find space for a small bed, or so large but that this modest flower might charm some quiet nook with its presence.

Many of the flowers are very brilliant in their colours, others more quiet. There are white, yellow, maroon, scarlet, crimson, olive, with other flowers edged, striped, spotted, and mottled. I have seen the Ranunculus in some gardens in a very unsatisfactory state, the beds with many blank spaces, and the flowers poor, with the leaves sickly. The reason of this is either careless planting, or that the roots are so small that they do not succeed well if not planted out at a uniform depth. Another reason is the want of water at the roots. In the first place, an open space should be chosen for the bed, the ground

should be well trenched in the autumn, and be lightly forked over three or four times when it is dry during the winter. The plant likes a good medium clayey loam.

Early in March is a good time to plant out the tubers, and this is done by drawing drills about 1½ inch deep and 4 inches apart. A little fine sand should be sprinkled in the bottom of the drills, and the small tubers should be placed in the bottom, pressing them gently into the soil; they ought to be about an inch and a half apart; it is also desirable to place a little sharp river or silver sand over the crowns. When the leaves have appeared above ground, it will be found that they have lifted the soil with them, and it is also further loosened by the action of the frost. It is a good plan to go over the bed and press the plants in firmly with the fingers, and with a label stir the surface, removing any weeds that may be in the bed. If the weather continues dry, a mulching of rotten manure should be placed between the rows. The ground must be kept quite moist by pouring water over the manure between the rows.

If the weather is hot, water should be applied every morning when the dew is upon the grass; but it is quite as well not to water the leaves. There is no other attention required until the flowers begin to expand, when it will be necessary to place an awning over the bed to protect the blooms from wind, rain, and sunshine. Water must be withheld when the flowers are at the height of their bloom. When the flowers and leaves decay the roots should be taken up, and be stored in a cool dry place.

The Ranunculus is easily raised from seeds, and to obtain good flowers of a new strain they ought to be crossed. Good semi-doubles (the more double the better) are the best from which to obtain pollen, and the same with the seed-bearing parent. The pollen should be removed from one flower to another with a camel's-hair brush; the operation may be performed twice a day—in the morning about 10, and in the afternoon between 1 and 2. Ranunculus flowers do not require to be supported with sticks, but it will be necessary to tie those to small sticks that are intended for seed, as the heads of seed would probably break the stem. Gather the heads when ripe, and dry the seeds in an airy room.

Mr. Joseph Tyso, of Wallingford, used to sow his seeds in October or January in a cold frame, where they vegetated in four or five weeks. Plenty of air was admitted when the weather was favourable, and early in May the boxes were placed out-of-doors, where they were supplied with water until the leaves withered. About the middle of July the roots were ripe and ready to be taken out of the soil. The roots were first dried and then placed in a box amongst dry sand. They were planted out about the first week in March, weather permitting, and flowered in June, the second season after sowing the seeds.

Many florists in the North and the Midland Counties still cultivate the Ranunculus; but they are not so strict as to the date of planting as the old florists used to be; and it is quite possible, by a little judicious management, to get two and even three blooms a year, from the same plants. I may say, that the seeds should

be sown thinly and evenly, and be just covered with a little fine mould. Sow either in pots or boxes.

The florists' standard in this, as in all other flowers, is smoothness and breadth of petal. A perfect flower would represent half a globe, not less than 2 inches in diameter at the base, the petals broad at the base, and diminishing in size nearer the centre; they should be sufficient to fill in the centre, and whether there is only one or two colours in each flower, those colours should be clear and distinct.



THE PHLOX.

THIS is one of the easiest grown and at the same time hardiest of herbaceous plants, and, to judge by the number of new varieties introduced to notice annually, it is also very popular. By common consent the Phlox has been elevated to the rank of a florists' flower. The ancestors of the very numerous family of beautiful varieties at present cultivated in our gardens, were introduced from North America. P. suffruticosa, the parent of the late-flowering sorts, has dark purple flowers, and P. pyramidalis pale rose flowers, with strap-shaped petals spread out like the sails of a windmill. They have in the course of years, by careful selection from seedling plants, and aiming at a standard that required the individual flowers on a spike to be perfectly circular, the petals broad and wedge-shaped, so as at least to quite fill the space within the radius, even to the extent of their overlapping each other. This standard has happily been attained, and added to it we have an endless diversity in the colours of the flowers; they are pure

white, rose, salmon, lilac, purple, carmine, vermilion, maroon, mauve, amaranth, &c., in various shades, and generally two colours pleasingly blended in one flower. A characteristic of the earliest raised varieties was the loose and irregular manner in which the flowers were placed on the spikes, and this was continued through many generations; so that now we have a compact head of bloom, with the flowers touching each other and forming a regular pyramid.

The Phlox may be said to be everybody's flower; requiring not the aid of glass in any form to grow it to perfection, although with its aid propagation is more easy and rapid. The Phlox is an excellent flower for herbaceous and shrubbery borders, as the plants continue to throw up trusses of bloom in the same place for many years, but each year after the third, the size of the trusses and quality of the flowers deteriorate; and to grow them of sufficient quality to satisfy a florist, a fresh lot of plants must be propagated annually. The best time to propagate the plants is as early as the cuttings can be obtained in the spring. If the plants are wintered in pots, and the pots are plunged in a cold frame, the cuttings from these will be ready at least three weeks earlier than from the plants growing in the open ground.

Those who can command a hotbed with just a little bottom-heat will have a considerable advantage over those who have no glass protection. When the shoots have grown about two inches, those intended for cuttings should be taken off close to the crown of the plant. I insert each cutting singly, in a small pot, in soil composed of three parts loam, one of leaf mould, and a little sand.

The pots are then plunged in some cocoa-nut fibre refuse over a dung-bed, and the glass-light is kept rather close for a few days, and the cuttings will soon strike out roots. When this has taken place the plants will start into growth, and air must then be more freely admitted. When the plants have grown about two inches, I pot at once into 5 or 6-inch pots, and place them back again in the frame. By this time the heat will have declined, and it is no longer necessary, as the plants will progress freely without bottom-heat. When the roots have reached the sides of the pots I remove the plants to a sheltered position out-of-doors. A stick must be placed to each, as the stems will not stand the force of a high wind. All the attention they require will be to supply the pots with sufficient water, using weak liquid-manure as soon as the pots are well filled with roots.

Some persons may say, "Do you call this an easily grown flower, when it requires all this bother?" The reason I advise so much care is this. Every one of those cuttings put in from the middle of February to the second week in March will produce a strong spike of flowers the same season, and each being grown in a small pot can be removed to the conservatory or greenhouse, where the delicate perfume thrown out by the flowers, and the striking effect produced by a judicious arrangement of the spikes amongst other plants cannot fail to be appreciated.

If it is designed to cultivate them in pots a second season the treatment should be this:—When the flowers fade cut the spike off and set the pots out-of-doors until November, when they may be sheltered for the winter

in a cold frame. Re-pot in February or March into 8 or 9-inch pots. The compost best adapted for them is turfy loam four parts, rotted stable manure one part, leaf-mould one part. Each plant will produce from three to five spikes, but five ought to be the maximum number. The plants must be placed out-of-doors by the end of March, and they must be fully exposed to the sun; water and place a stick to each spike, as already recommended.

The Phlox is more frequently grown in beds than in pots, and to obtain the best results the soil must be deeply trenched and richly manured. The Phlox is a gross feeder, and speedily exhausts soil that has only been dug and manured in the ordinary way. I place two good layers of manure under the plants, one six inches below the surface, and another nine inches deeper, and the ground is stirred up six inches deeper than the under layer. The best plants for a bed are those that have been propagated and grown in pots for one year. I plant four rows in a bed, and allow 20 inches between each plant, and they will do all the better if a little fine rich soil, such as is used for potting, is placed round the roots of each. As the stem increases in growth it must be fastened to the sticks, which ought to be a little stouter than those used for the pot plants. Even with the rich soil and deep cultivation the plants will suffer when the dry weather sets in. It will be necessary to place enough manure on the beds to cover the surface, and in dry, hot weather a good supply of water should be applied through the coarse rose of a large water-pot three times a week. The manure arrests evaporation from the soil, and its

fertilising properties are washed down to the roots of the plants.

They may be either planted out in the autumn or in the spring; either way there will be a good bloom the first year. They will do in the same place for another season, but the number of shoots produced will be greatly in excess of what is required; these superfluous growths, which ought to be removed early, make excellent cuttings. The largest number that should be allowed to flower on each plant is five. In ordinary seasons the cuttings will be ready from out-of-door plants about the middle or end of March, and if it is not intended to use small pots for the cuttings they may be inserted in a bed of fine soil, about three inches apart, out-of-doors. When rooted, replant into store-beds about six inches apart. These plants may be transferred to their flowering-beds in the autumn or spring, and be treated in the same way as has already been recommended for beds planted with pot plants.

To keep a supply of the best flowering plants it is necessary to propagate a fresh lot annually. I never allow the plants to remain more than two years in a bed, as after the second year the quality of the bloom deteriorates, and it is better to dig the plants up and throw them on to the rubbish-heap. Some cultivators chop the large plants up with a spade, and forthwith proceed to plant fresh beds with the fragments. This system need only be noticed to condemn it. Such treatment is simply barbarous, and those who pursue it do not deserve success. By growing varieties of both species a longer succession of bloom can be obtained. P. pyramidalis flowers a month or six weeks before the

varieties of P. suffruticosa, but my experience with the former is that its varieties require more care than those of the later-flowering sort. The hot, dry climate of the south-eastern districts of England causes the leaves to spot, and some varieties refuse to give decent spikes. On this account it is grown to a very limited extent in the metropolitan area. In the comparatively moist and cool climate of the North of England and Scotland it succeeds remarkably well, and the fine varieties that have been raised from seeds by Messrs. Downie & Laird, and other growers north of the Tweed, have mostly been from P. pyramidalis. When I used to grow Phloxes for competition in Scotland, nine-tenths at least of the varieties were from P. pyramidalis, and they did not flower earlier in the year than the late-flowering sorts do in the South.

For the benefit of the Northern cultivators I give the names of the best varieties :—Bayard, Duchess of Athole Lady Napier, Madame Berthe Rendatler, Mauve Queen Miss Robertson, Miss Hunter, Perfection, Purple Emperor, Pladda, The Deacon, The Queen, Waverley. P. suffruticosa, the late-flowering type, has been brought to great perfection in France, notably by the late M. Lierval, who died in Paris during the siege of that city by the Germans. Other growers of the same nationality have taken up the culture of this flower, and new varieties are raised annually, but from what I have seen of them I do not think that, taking the average, they are in any respect superior to those raised by Messrs. John Laing & Co., of Stanstead Park, Forest Hill. A few of the continental varieties recently introduced are remarkable for

the brilliancy of their colours, but I fancy that Mr. Laing's flowers have size and shape of individual pips in their favour. A friend who travelled in France last year and grows all the new Phloxes, informs me that he did not see anything better than our own home-grown flowers. The best we have up to the present time are to be found in the following list, viz. :—Ada Louisa, A. F. Barron, A. Crousse, Boule de Feu, Delicatum, H. M. Simons, J. K. Lord, Le Lion, Lothair, Madame Domage, Monsieur Marie Saison, Mrs. Laing, Princess of Wales, Queen of Whites, Souvenir des Ternes, Victor Lemoine, and a novel striped variety named York and Lancaster.

THE PENTSTEMON.

THIS is one of the most easily cultivated of hardy flowers, and may be named with the Phlox as being specially adapted for the gardens of cottagers and amateurs. The reason why it is so well adapted for such gardens is that it is hardy and does not require much care. But it is so well adapted for beds and mixed borders, and its beautiful spikes of variously coloured flowers are so useful to cut for decorative purposes, for large nosegays or vases very late in the autumn, that few gardeners would care to be without them if they once gave them a trial. Probably P. gentianoides is the parent of most of the fine varieties at present in cultivation, although it is not improbable that some of the large broadly-opened flowers owe their most valued characteristics to that beautiful late-flowering species P. Cobæa. Some very fine hybrids have been raised in France, but it is to Messrs. Downie & Laird, of Edinburgh, and Messrs. Laing & Co., of Forest Hill, that thanks are due for most of the beautiful varieties that at present adorn our flower-beds and borders.

Those intending to commence the cultivation of this flower would do well to obtain the best and most recently introduced varieties, and it will be very easy afterwards to raise seedlings from them. Seedlings are easily raised, and when they come into flower it is a daily occupation of much interest to look over the beds as the flowers open, and to mark all that possess qualities superior to those already in cultivation. The present season, 1879, has shown us how very useful this plant is in such a cold season. A noted horticulturist was looking over our gardens late in the season, and involuntarily inquired what we had been doing with the Zonal Pelargoniums? "Why," he said, "you have no flowers on them; but it is the same everywhere, I suppose." As a matter of fact, such bedding plants were a complete failure; but what a contrast between them and the Phloxes and Pentstemons! The first-named began to flower in August, and continued much later than usual. The Pentstemons speedily followed, and flowered profusely, well into November. In order to have a late bloom, all the seed pods and decayed flowers must be removed. The plants cannot produce flowers plentifully and ripen seeds at the same time. If seeds are to be saved, it is much better to set apart a few plants for that purpose, and select the first flowers on the main stem. To grow the plants well they must have a deep, very rich open soil, and must be well supplied with water in dry weather, mulching the beds and borders in the same way as has been recommended for the Phlox.

Propagation by Seeds.

When these have been saved from the finest and best marked flowers, it may be as well to keep the seeds in a dry place until the early spring months, when they may be sown in pans or shallow pots. These should be filled to near the surface with good soil, placing the finer portion on the top; then make it quite level, sow the seeds thinly, and just cover over with fine sandy soil. The seeds will soon germinate in a gentle hotbed, when the plants may be pricked off into pots or boxes, placing them back again in the frame until they are established; then put them in a cold frame, and gradually increase the ventilation until the lights can be removed altogether. The plants may be put out into their flowering quarters about the end of May. Plant about fifteen inches apart. Each plant will require a stick to start with, but they will soon be self supporting, as numerous flowering stems are thrown out; and they will then form a compact mass of bloom. All the most promising varieties must be marked to be grown again, and this leads to the next method of increasing the stock.

Propagation by Cuttings.

The best time to take them off is in September or October. The small succulent side growths answer best for this purpose. We take cuttings at the same time as the bedding Calceolarias, and they require the same cool treatment. Perhaps the best way is to prepare small pots; let them be filled with

fine sandy soil, and insert as many cuttings as may be required of a sort in each pot. I generally place the pots under hand-glasses behind a north wall or on the shady side of a hedge or fence. Keep the lights rather close until the roots are formed, and then gradually admit air more frequently, water sufficiently to keep the soil moist, and when the cuttings are rooted, pot them off singly and place the pots in a cold frame, or the plants may be put out four inches apart in shallow boxes.

The following list comprises the best sorts in cultivation at the present time:—Andrew Hunter, Countess of Eglington, Dr. Gray, Dr. Tuke, Emma Marsh, Garlies Mitchell, Horace Vernet, John F. Kinghorn, John McNab, Lawrence Dow, Lady McDonald, Miss E. M. Keith, Miss Dunbar, Mrs. D. Fox Tarratt, Mrs. Wills, Mrs. Sutherland Walker, Master Fox Tarratt, Percy Wynne, Princess Louise, Richard Dean, the Bride, William Kelway, W. P. Laird and William Fowler.

THE ANTIRRHINUM.

(*Antirrhinum majus.*)

ORIGINALLY introduced from the south of Europe, this showy plant has become a great favourite in many gardens, and is greatly valued by those who have neither glass houses nor garden frames at their command, or who, having those structures, require all the available space for plants of a less hardy character. The plant in question is quite hardy when well established before the winter sets in, but it often happens that plants put out late, and which have not had time to become established before winter arrives, suffer from the continued effects of frost and cold rains, as many other hardy plants do under the same circumstances. The most striking effect is produced when the plants are put out in beds, although isolated specimens in the mixed border are very effective, combined with the blue of Delphiniums and the various colours of the Aquilegia vulgaris. I well remember the zest with which, as a boy, I used to cultivate the Snapdragon. At that time, cut spikes of it were exhibited at flower-shows in the autumn, and a row of stands con-

taining a dozen distinct varieties in each, offered a striking contrast to the more symmetrical forms of the Dahlia. There is no need to expatiate on the merits of the flower, either for garden decoration or for exhibition; enough, that it holds no mean position in either capacity. It is more grown in Scotland than it is in the south; and Messrs. Downie and Laird, of Edinburgh, annually send out a batch of about eight or nine named varieties. Their catalogue contains about one hundred sorts, most of them of their own introduction.

Those who intend to grow the Antirrhinum should purchase, say, a dozen of the best and most distinct varieties in early spring. Plant them out in a favourable position in good soil, and see that they do not suffer for lack of attention, such as watering, mulching the ground, and placing sticks to the flower stems. Under these circumstances the plants will make a strong healthy growth, and produce flowers very freely. By-and-by, plenty of good seeds will be produced, and these should be saved and sown as soon as it is ripe, in August or September. Sow in pots, pans, or boxes, according to the quantity of plants required, but a couple of 6-inch pots will produce enough for an ordinary sized garden. When the plants are large enough, they should be pricked out two inches apart in boxes, using light, but rather good soil. The plants will be established before the winter, and if such convenience is to be obtained, they may be protected in a garden frame or greenhouse, placing them near the glass, and keeping a dry atmosphere, and a very free circulation of air. If there is no glass structure in which to place the plants, the seeds ought to be sown early and

the plants be put out in beds by the first week in September. Premising that they have been wintered in a frame or greenhouse, let the plants be put out in beds, on



(Fig. 15.) ANTIRRHINUM HENDERSONI.

the first favourable occasion, in April. The Antirrhinum does not object to plenty of rotten manure in the soil, and it ought to be worked to a good depth. If it is intended to plant a bed of them, let the ground be made level, and it ought to be dry at the time of planting.

The plants should be carefully lifted out of the boxes, and be planted with as little injury to the roots as possible, and just press the fine soil about the roots with the fingers. The plants may be eighteen inches apart each way. As far as the general effect of the beds is concerned, seedlings are quite as good as named sorts, and if the seeds have been obtained from the most distinctly marked flowers, there are sure to be many as good as the parents, and probably some that may be better.

Propagation by cuttings, is the way to perpetuate named varieties, and the cuttings will strike in a gentle bottom-heat as easily as Fuchsias or Verbenas. The cultural requirements are very simple. It is not worth while to grow them in pots, as they do so well in the open ground. The preparation of the soil and method of planting is the same as for seedlings. See that the soil does not become dry during the summer; if this happens the stems become hard and the flowers produced afterwards are very inferior. Mulching of the ground with rotten manure after watering is of very great advantage to the plants, causing the surface soil to become quite full of active rootlets.

It is not worth while to give a list of names, but it is worthy of note that a variety named Hendersoni (see fig. 15), which was considered the best twenty-five years ago, stills holds the highest position.

THE PANSY.

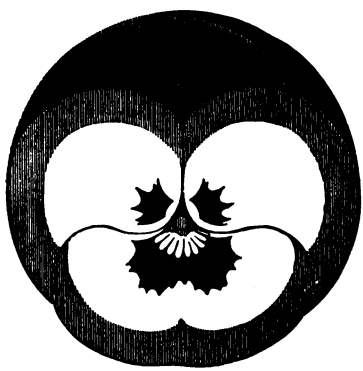
AMONGST hardy border flowers, few are more generally grown or appreciated than the Pansy. It is one of those flowers that require but little attention, but as it will grow almost anywhere, even the small amount of care required to bring it to the highest point of perfection is not always bestowed upon it. A bed of seedling Pansies is easily obtained, and if the seeds be saved from good flowers, the mass of bloom, so beautifully diversified, has a charming effect. The first or second week in September is a good time either to sow seeds or put in cuttings of the named sorts. Those who have the convenience of glass-lights, or hand-glasses, would do well to sow the seeds or plant the cuttings in shallow boxes or pans, and place them under glass; not that the seeds will not vegetate, or the cuttings strike roots in the open ground, but they will do better under glass. In sowing the seeds I fill the pans nearly full of a compost consisting of loam, leaf-mould, and sand, in about equal parts, the loam predominating a little; I make the surface quite level, then sprinkle the seeds thinly over

it, and just cover them with fine soil. The same compost answers well for cuttings, and these should be taken from the centre of the plants. The smallest growths strike root most readily, but the strong-flowering stems take a long time and are seldom satisfactory. When the seedling Pansies are large enough to handle, I prick them out in fine sandy soil on a level surface, and I do the same with the young plants raised from cuttings; they are also planted out about three inches apart, until they are well rooted, when they may be planted out in beds or borders prepared for them.

The Pansy likes a cool soil and climate, and though our garden soil is very light and sandy, on a gravelly subsoil, and the air is hot and dry, we grow them very successfully. This last season I had a bed of them 60 feet long and 3 feet wide, which continued in flower from March, until the frost came in November, and in good condition the whole time. The preparation of the ground for this bed was done in September. It was trenched 2 feet deep, and well manured with cow manure, the best for this purpose. The surface of the bed was also lightly forked over two or three times when it was dry, and I was also able to place some fine virgin loam on the surface before planting. All the attention required after this was merely keeping the ground free from weeds, and occasionally stirring the surface. Many may be inclined to think that this is a great deal of trouble to take with such a flower as the Pansy or Heartsease, but those who are really fond of flowers will take a pleasure in doing all they can in order to attain success. Pansies produce flowers in succession, and so

freely that they will ultimately come quite out of character.

As soon, however, as it is seen that the flowers are deteriorating, by the belting (see fig. 16) becoming imperfect, nearly all the blooms should be pinched off, and the shoots should be pegged down close to the surface of the ground, having previously placed some rotten manure on the surface, and, if the weather be dry, give a good soaking of water. The next flowers



(Fig. 16.) A "MODEL" PANSY.

produced after this will be of good quality. This same operation must be performed as often as it is necessary, and the result will be good blooms all through the season. When it is intended to exhibit Pansies the shoots should be thinned out to about five or six, and all the flowers should be removed two weeks before the show.

The Pansy succeeds so well out-of-doors that it almost seems superfluous to grow it in pots; the only object in doing so is to have the flowers earlier, and also to protect

them from the rough weather experienced early in the year. The cuttings for plants in pots should be taken earlier than in the case of out-door plants, say the first week in August, and they should be propagated in the same way. When rooted they must be potted in small pots, and they should be placed near the glass in a cold frame; when the little plants have quite filled their pots with roots, re-pot them into 4-in. ones, and by the middle of October they may have their final shift into 6-in. or 7-in. pots, according to the strength of the plants. In all stages of their growth the plants should be quite near the glass in the cold frames; the lights should be removed when the weather is fine, or when rain is falling gently, but they must be protected from heavy thunder showers. Green-fly attacks the plants when grown under glass, and would seriously injure them if it were not at once destroyed. I prefer fumigating with tobacco smoke, and the lights must be kept quite close when the operation is being performed. It is best not to fill the frame too full of smoke. On the contrary, rather fumigate three times at intervals of three days. If the frame be placed in a sunny position, the plants will commence to flower early in February if the weather be mild; of course, they will make no progress during frosty weather; and they will continue to produce flowers until the end of April, when those out-of-doors will succeed them. The potting material should be good turfy loam, four parts; leaf-mould, one part; rotten cow manure, one part; with some sharp sand added if necessary. Weak liquid manure should be applied when the first flowers open, if the pots are well filled with roots.

The following lists of Pansies comprise the best sorts in cultivation in their different classes. For the first list I am indebted to Mr. Miller of Leek; and for the second to an eminent Scottish grower:—

1. *Selfs.*—Alexander Watt, purple self, large and fine; Captain Hayter, fine yellow self; Duchess of Edinburgh, fine white, with large blotch; George Rudd, best yellow self; George Keith, dark self, fine form and quality; Mrs. Turner, very fine white distinct blotch; Sunny Park Rival, blue self; True Blue, self.

White Grounds.—Jennie Grieve, Beatrice, Bessie Wyatt, Bridesmaid, Dawn of Day, Mrs. Galloway, Mrs. R. B. Matthews, Patroness.

Yellow Grounds.—Christopher North, Frederick Wood, Normand, C. E. Champion, Robert Burns, Sparkler, William Catley, Walter McKay.

Fancy.—Colonel Wedderburn, David Cavan, George Wood, Emblem, James Grieve, W. H. Miller, Miss M. Nutt, Mrs. Crawley, Mrs. Shirley Hibberd, Queen of Yellows, Thomas Grainger, William Melville.

2. *Selfs.*—Alpha, pure white; Beacon, dark maroon; L. T. Fleming, bluish black; George Murray, pure yellow; Garry, very dark; Zama, yellow.

White Grounds.—Duchess, Miss Todd, Mrs. Henderson, Princess of Wales, Undine.

Yellow Grounds.—Miss L. Murray, Mrs. Russell, Captain Cowan, The Favourite, Corsair, and Perfection.

Fancy.—Francis W. Leland, George Wood, John B. Downie, Miss Macmicking, Mrs. L. T. Fleming, Mrs. James Watt, William Melville, and Lady Falmouth.

THE PINK.

PLANTS of these may be raised in two ways, viz., from seed and pipings. If new varieties are wanted seeds must be saved from hybridised flowers, that is, the pollen must be removed from the flowers to be operated upon before it is in an active state, but the stigmatic portion must be kept uninjured; this variety will be the seed bearer. The pollen must be taken from a suitable variety when its flowers are fully expanded, and be applied with a camel's-hair pencil. The seed should be sown in April in pots, and when the plants are large enough to handle they should be pricked out on a level surface of fine soil, consisting of equal parts of sifted turfy loam, well rotted leaf-mould, and sharp sand. Prick the plants out two inches apart, as they do best when not too far apart at first. When they have quite filled the space allotted to them they should be moved to four inches apart, to be a third time planted out in their permanent quarters in October of the same year, where they will flower with the named sorts the following season. The named varieties are propagated by taking cuttings or pipings at the time

the plants are in flower. Thin wiry grass strikes root more readily than that of a stronger and more succulent character ; but if the centres of the strong growths are pinched out, lateral growths will be formed, and when large enough these may be slipped off from the main stem and inserted at once without any other preparation. I have tried different systems of management with the Pink pipings both in England and Scotland, but never was more successful than when I took the pipings when young and small, selecting a shady position out-of-doors —for want of a better, the north side of a hedge or row of gooseberry bushes. Always choose a wet day for the purpose, if possible—herein lays, to some extent, the secret of success. In this way I got ninety plants at least out of every hundred cuttings. I have tried different and more scientific systems, but with less favourable results.

In the hotter and more arid atmosphere of the south-eastern counties, where the pipings will not strike roots readily out-of-doors, the plan I have successfully pursued has been to obtain boxes of any convenient size leaf-mould, and adding to it one-third part of sand. Use to fill them with, a compost consisting of sifted loam about three inches deep, and, having drained them well, the siftings at the bottom of the box, and the finer portion, mixed with sand, at the top, press it in firmly, and make the surface quite level. The pipings may be put in firmly about one inch apart in rows two inches apart ; larger pipings may be a little wider. I put the boxes in a frame over a little bottom-heat, and if the frame be placed under a north wall all the better. Shade

from bright sunshine and remove the lights entirely on a quiet dewy night. If the grass be in good condition, but few losses occur in this way. When most of them have formed roots, the lights are removed by day, and the boxes ultimately placed in the full sunshine. When they can stand this, I plant them out in August four inches apart, finally planting them in highly-manured soil at a distance from plant to plant of nine inches. If it be possible to obtain a layer of about two inches or three inches of fine maiden loam to place on the surface before planting, a much more luxuriant and healthy growth will be the result.

Many persons, including florists of high attainments, amongst them the late Rev. George Jeans, have preferred the Pink to the Carnation and Picotee. The flower itself has intrinsic beauty of its own, but it adds to this a delicate Clove scent, which is more grateful than the perfume of its more stately rival. Further, many florists and others can grow Pinks who have not the means to attempt flowers of higher pretensions. Pinks to do well, and bring out the lacing correctly, should be planted early in October, and this necessitates considerable attention being paid to the plants during the winter months, especially when frosts and thaws alternate; for then the plants are thrown out of the ground by the frost, and when the thaw comes require to be pressed into it again with the fingers. The plants are frequently eaten over by an unseen enemy; no trace of the depredator being found by day except the destruction that has been caused. Mice, rats, and rabbits, have been blamed (the last, by the way, are very fond of every

part of the Pink to be found above-ground), but the culprit is possibly the leather-coated grub, which feeds by night, and burrows under ground before daylight; it can readily be caught feeding an hour or two after it is dark by the aid of a bull's-eye lamp. Occasionally stir the surface of the ground with a hoe or pointed stick, and place small sticks to any plants that are not steady in a gale.

The following is a list of the best Pinks at present in cultivation :—Annie (McLean); Bertram (Turner); Device (McLean); Dr. McLean (Turner); Emily (Battersby); Excellent (Turner); Excelsior (Marris); Freedom (Hooper); John Ball (McLean); Godfrey (Turner); Harry Hooper (Hooper); Lady Craven (Hooper); Lord Kirkaldy (Turner); Mildred (Turner); Mrs. Howarth (Hooper); Mrs. Mitchell (Hooper); Nonpariel (Bragg); New Criterion (McLean); President (Turner); Prince Frederick William (Hooper); Princess of Wales (Hooper); Reliance (Hooper); Rev. G. Jeans (Kirtland); Sarah (Turner); Victory (Hooper). There is not much being done in the way of raising new varieties, but the following are recently introduced and very good in their way :—Shirley Hibberd, a very large, full flower, with broad, richly laced petals; Dr. Masters, a very large, full flower, rather weak in growth, but very distinct; and Boiard, perhaps the finest Pink yet raised, the petals being very broad, the flowers full and of good shape, the lacing purplish-red, and well defined.

THE AQUILEGIA.

THE old-fashioned Columbine, Aquilegia vulgaris, is a very pretty and useful plant for the mixed border. It is a native of Britain, although it is not often found wild. There is no difficulty at all in growing the common Columbine, and the plants are easily propagated by dividing the roots. There are many double varieties, and they are also of many colours. The pure white variety I consider the best of them; the flowers are very large, abundantly produced, and the elegant, light green, glaucous foliage is very beautiful. Besides this there are blue, blue and white, purple, red and pale pink flowers, in fact the varieties are endless, and they may be still further improved by a judicious selection of varieties to seed from. Even now this beautiful plant may well be ranked amongst the florists' flowers. Give it a deep rich soil of fairly open character, and support the flower-stalks as they appear with neat sticks about 18 inches long, and the result will be a succession of useful flowers for furnishing vases for nearly two months before and after mid summer.

There are none of the Alpine or Rocky Mountain species quite so hardy as the above, although nearly all of them will withstand our winters. The delicate species suffer from wet and cold combined. The most beautiful species is that introduced from North America—A. cœrulea. I have not tried this form out-of-doors at all, but it is most beautiful for pot culture. There are many varieties which vary in the shape of the flowers, in the colour of the outer petals, or in the quantity of flowers produced. Some varieties have the outer petals long and pointed, others shorter and more obtuse at the points. In all cases the centre or inner petals are white, and the outer pale blue of various shades. The height of the plant is a foot or more.

The culture of A. cœrulea in pots is very simple, and the method recommended for this species applies to all. In order to have good flowering plants from seeds, they ought to be sown in March or early in April. I sow in small pots or pans, and place them in a gentle hotbed. The seedlings appear above-ground in about two weeks, and they are speedily pricked out into 4 or 5-inch pots, about a dozen or more in a pot. The pots are again put back into the frame, and when the young plants have grown sufficiently they are potted off singly into small pots, re-potting again as the plants require it. They ought not to be over-potted, and I have not yet had a plant of A. cœrulea that required a larger pot than a 5-inch, that is, one five inches in diameter, inside measure. I trust that is always understood when referring to the size of pots. One cannot be too careful in giving plain instructions as to the size of pots. I heard the other day of an

amateur who was advised in one of the horticultural papers to apply a tablespoonful of concentrated manure to the surface of the soil in a 15-inch pot; he did so, and killed his plants. His mistake occurred in measuring round a 5-inch pot. When the plants are well established in the pots in which they are to bloom they may stand out-of-doors, or if under glass in cold frames the lights must be removed whenever the weather is favourable. Plenty of air is necessary, and it is also desirable to occasionally syringe the leaves in order to keep down red-spider. This is a serious pest, and spoils the foliage. I winter the plants in cold frames, and they remain in them until the flowers open, when the plants are transferred to the greenhouse. A. glandulosa is a very pretty species from Siberia, the flowers have some resemblance to those of A. cœrulea, but the spurs are much shorter. I have raised many plants from seeds, but all of them have been much inferior to A. cœrulea in all respects.

One of the most distinct and beautiful of the genus is A. chrysantha (see fig. 17) or A. leptocera lutea, recently introduced from America; it is a very robust growing species, and produces its large golden flowers in great abundance. The flowers are erect, with long spurs. It has a very striking effect, as a greenhouse plant, from its distinct colour, but it stands the winter out-of-doors, and produces its flowers freely early in June. A. alpina ought not to be omitted from a select collection. The shape of the flower is like that of A. glandulosa, but it differs from that variety in the colour of the *flowers*, which contain a dash of purple, and the

leaves are more finely divided. It does not succeed so



(Fig. 17.) AQUILEGIA CHRYSANTHA.

well in pots as some of the others. Its natural position is on the shady side of a mass of limestone in the rock

garden ; there it will succeed with a good depth of soil and plenty of water. Another species well worthy of a place in a select collection is A. Skinneri ; although a native of Guatemala, it is quite hardy in the flower borders. When grown in pots it is as robust in character as A. chrysantha. I had one plant that was flowered in a 7 or 8-inch pot, with nearly 100 blooms on it: these were orange-scarlet externally, having the inner petals yellow. I found it very liable to be attacked by red-spider in hot weather. These were kept in check by syringing the under-sides of the leaves. This species flowers earlier than any of the others I have named.

A. pyrenaica is a very fine species with large drooping flowers of a purple colour, which are very freely produced on numerous stems. A. californica is a species that should be included in a collection for its distinct character. It is a very hardy plant, and produces numerous flowers on tall stems; they are scarlet on the outside, being internally of a rich golden colour; the spurs are short, and the flowers are not so large as those of any of the above-named species.

I may also say a word about the new hybrids raised at Loxford Hall. The one that has been most admired is A. cœrulea hybrida: it is a cross between A. cœrulea and A. chrysantha, and possesses the characteristics of both these fine sorts. First as regards the habit, the plants are much more robust than A. cœrulea, but not so strong as A. chrysantha. The colour of the outer petals of the flowers is pale blue as in one parent, and the inner petals are yellow like the other. It was a question with

some whether seeds saved from the hybrid progeny would come true, I have proved this year that they vary very little indeed from the parents in the first generation. The same remarks apply to A. californica hybrida. This is a very much more robust variety, and flowers are rather more abundantly produced. The most interesting fact to be noted in these hybrids is that all the plants are as nearly as possible exactly alike: out of a hundred plants standing together of one cross the variation was scarcely discernable. I may say that the hybrids are exceedingly well adapted for pot culture, and they form a very striking feature in the herbaceous border. Aquilegias are very easily grown, and are subject to no insect pests that I know of, except red-spider. The flower stems, if the plants are grown out-of-doors, must be supported with sticks; t hose inside require no such protection.

MONTHLY

CALENDAR OF OPERATIONS.

JANUARY.

AURICULAS.—The treatment of these will depend to a certain extent upon the weather. All dead or decaying leaves should be removed, and the lights should be drawn off whenever the weather will admit of it. It is not desirable that the plants should be quite dried off for want of water, but on no account give the pots water in frosty weather, and if it is necessary to give any, pour it carefully into the pots—wet not the foliage nor allow any to run over. If the soil in the pots is dry and the weather mild, I apply water once in this month. Fumigate the frames with tobacco smoke if there is any green-fly on the leaves. If the frost is very severe place mats over the glass lights at night.

CARNATIONS AND PICOTEES.—These require somewhat similar treatment to Auriculas, but the soil in the pots must not be allowed to become quite so dry. The frames may be fumigated at the same time as the Auricula frames. Any leaves that become yellow or much

spotted should be removed with a pair of scissors, nor should green mould or weeds be allowed on the surface of the soil. The plants do not suffer from frost if unaccompanied with damp.

CHRYSANTHEMUMS.—Except a few of the very late-flowering sorts, the flowers of these will be over, and as soon as they are all cut, the stems can be cut over close to the ground, unless it is intended to grow plants of the large-flowered sorts, with a single stem. Some of the stems may have a tuft of young shoots with a clear stem under it. If these plants have the soil shaken from the roots, they will be the best for specimens to flower early next season. It is best to take cuttings from root suckers, as they would not be likely to flower prematurely, as stem cuttings sometimes do. When the plants are cut over they may be placed close together, either in a cool greenhouse or cold frame, and as soon as the cuttings are ready they may be taken off and potted. Those intending to grow fine large blooms for exhibition, must plant each cutting singly in the centre of a small pot.

DAHLIAS.—If it is intended to get up a good stock of any particularly choice or scarce varieties, the roots should be potted and placed in the same heat as the Hollyhocks. Use moderately moist soil for potting with, but do not water it for a few days after potting, and apply water sparingly until growth is made; keep the plants as near the light as possible: the cuttings may be taken off when 2 inches long; they strike root freely in a little bottom-heat.

GLADIOLUS.—In order to have an early bloom, a few of the earliest flowering sorts should be potted, a single

bulb in the centre of a 5-inch pot. Place the pots in a cold frame, where they should be plunged in cocoa-nut fibre refuse. The soil used to pot the bulbs should be good loam, to which is added a fourth part of leaf-mould. A little clear silver or river sand should be placed under and over the bulbs.

HOLLYHOCKS.—Early in the month place the choice and scarce varieties in a temperature of about 50° at night. This will excite them into growth, and as soon as the shoots are long enough cut them off with a heel, and pot each singly in a small pot, using light soil, and some sharp white sand just at the base of the cutting. Plunge the pots in a gentle bottom-heat, and cover with hand or bell-glasses. Water very sparingly: too much water or steam from a dung frame will rot the cuttings.

PANSIES in beds do not require much attention. See that none of the plants receive any injury. After a frost it may be necessary to press the plants into the ground with the fingers. Those in pots must also be looked over occasionally. Slugs will get into the frame, and they are remarkably fond of the leaves and flowers. They may be observed feeding at night, with a lamp, and can then be picked off and destroyed. If they are very numerous take the plants out of the frames, and dust the surface of the soil in the frame over thickly with quick-lime. The flower-buds will be formed and begin to open towards the end of the month, if the weather is favourable.

PHLOXES AND PENTSTEMONS.—In mild weather, if these or any other similar hardy subjects require to be

potted, it may be done. Those planted out in beds or in the open border will require no other attention than to be kept clean, the surface of the beds to be stirred; and slugs and other marauders to be destroyed.

This will also be a convenient season to forward the work by getting all the appliances ready. Sticks may be made for Carnations and Picotees from 2 feet to 2½ feet in length; for Pinks 15 inches to 18 inches. All other sticks may be prepared of the required lengths and thicknesses. Pegs may be made for Pansies and for layering Carnations. Exhibitors must see to the repairing, painting, and varnishing of their stands, travelling-boxes, &c., and have everything looked over and made ready for use at the required time. Pots should also be washed and placed neatly together in the different sizes ready for use.

FEBRUARY.

AURICULAS.—The plants wake up into active growth this month if the weather is fine. Frost sometimes continues to be severe all through the month; in that case the plants will be quiescent. Top-dress about the middle of the month, but before doing so see that the roots are well saturated with water; also take the opportunity of the surface soil being removed to take off any offsets that are ready, and propagate them in the usual way.

CARNATIONS AND PICOTEES.—These will require to be watered more frequently; indeed, the soil should not

become dust dry after this month comes in. If the season is early, the plants must be in their flowering-pots by the end of the month; if it is a late season, the first week in March will be time enough. Cleanliness is still all-important—not a decaying leaf should be seen. Sparrows do much damage to the plants sometimes, for these troublesome birds attack the tender leaves in the centre of the plants; and it may be necessary to net them to keep the birds off. See also that the plants are quite free from green-fly.

CHRYSANTHEMUMS.—If the cuttings were not put in last month, it will answer well to do so this, but the work must not be delayed. Instructions have been given as to the best class of cuttings to take, and how to pot the old plants for specimens. It is best to dip the cuttings in a solution of soft-soap and tobacco-water, strong enough to kill greenfly. A genial sweet bottom-heat in a hotbed is the best place in which to strike the cuttings at this time.

DAHLIAS.—Continue to take cuttings from those roots placed into heat in January. It is not well to plunge the pots in a very high bottom-heat, nor should the temperature of the house where they are struck be more than 50° at night: but it may rise in the day 5° or 10° higher than this. As soon as the cuttings are rooted take them out of the bottom-heat and place them on a shelf or stage near the glass, as a preparation for potting them into larger pots in the course of a week. The cuttings will not all strike root at the same time; slender growths form roots in less than half the time those of a gross, succulent nature take. Gradually inure the plants

to a free circulation of air, to obtain a stocky habit of growth.

GLADIOLI,—About the second week in the month look over the collection of roots, and all that are showing signs of growth, either by pushing out roots or growth, should be selected and planted in a sheltered place. If a dry, sheltered position cannot be obtained for them, the roots may be potted singly in 4 or 5-inch pots, using fine soil. Place the pots in a cold frame, and it is better to plunge them in some dry material. The ground intended for the general collection should be lightly forked over at intervals of two or three weeks if it is dry on the surface.

HOLLYHOCKS.—Continue to take cuttings when strong enough, and they may either be struck, as recommended in January, or be root-grafted. This is done by simply tying the cutting on to a bit of root, but the edges of the scion and stock should fit exactly, and the cut portion be made quite smooth. Tie firmly with matting, and pot deep enough just to cover the union. Autumn-struck cuttings should be potted on; if these plants become pot-bound they will do no good, the spikes of bloom will be weak and be thrown up prematurely. The plants will do in cold frames, but better if they can be placed on shelves near the glass in a house from which the frost is just excluded. See that the plants do not suffer from want of water.

PANSIES.—Those intended to flower in pots any time in April should now be re-potted into their flowering pots. The plants should be strong and have well filled the pots they are in with roots. If it is intended to bloom them

in 8-inch pots they should now be in 6-inch. Keep the plants quite free from green-fly and look for slugs at night. Surface-dress the beds with rich soil; that formed of loam and rotted manure in equal parts answers well. If the growths are long enough, peg them down to the surface of the ground.

PENTSTEMONS.—Those plants wintered in frames may now be planted out in beds if the weather is fine and the ground dry. If it is intended to grow any plants in pots they should be re-potted, and be kept quite clean, and near the glass in a cold frame.

PHLOXES.—The plants grown in pots under glass will have shoots 2 or 3 inches in length; thin them out, leaving three or five. The superfluous shoots should be potted singly into thumb-pots and be placed in a little bottom-heat; an ordinary hotbed answers well. The old plants may be put out in a bed, or be planted in the herbaceous borders.

RANUNCULUS.—From the beginning to the end of the month these should be planted. As the roots are very small it requires careful attention to the work to do it well. The crowns of the tubers should be just 1 inch below the surface of the ground. If the soil is light it is desirable to get some clayey loam, and to two parts of it add one of rotted stable manure, and cover the roots with this. The operation ought to be performed in fine dry weather.

TULIPS.—It depends much upon the season what the treatment of these will be. In a mild winter all the plants are well above the ground by this time; and, should severe weather set in, it is as well to cover the beds. I

have not found it necessary to do this in the South of England, but in the North the growers will not trust their choice plants out on a frosty night if the leaves are wet. They bend stout iron wires over the beds in the form of a semi-circle; these are kept in their place by iron rods, in a horizontal position. The protecting material consists of good mats or stout canvas.

MARCH.

AURICULAS.—The plants will now be growing freely, and should any green-fly have been left on them after the winter fumigatings, the pest will now spread rapidly; as it is dangerous to fumigate, because of injury that might accrue to the fresh young foliage, the fly ought to be removed with a camel's-hair brush. The mealed foliage of many varieties is extremely beautiful when it first expands. Whenever there is any chance of frost at night mats must be placed over the frames. See that no plant suffers for lack of water at the roots, but take care not to spill any on the mealed foliage or in the centre of the plants. Pay considerable attention to airing the frames, which must be so managed that the plants are protected from cutting winds.

CARNATIONS AND PICOTEES.—If these are not all potted, no time should be lost in doing so. Many persons place the pots out-of-doors as soon as they are potted, but I do not approve of this. It would be very well if there was no danger from rain, sleet, or snow. A heavy fall of rain immediately after potting would be disastrous. Indeed I have seen a collection potted from the frames,

which were almost immediately covered with snow. Plants in beds should be looked over, and those that have been thrown out of the ground or loosened by frost, should be pressed in with the fingers.

CHRYSANTHEMUMS.—All the cuttings of these should be put in by the end of the month. They do not require much heat, but will strike root in a very slight hotbed. Cuttings that were put in early in the year will now be so far advanced as to require potting. The plants may either be placed in a cold frame, or they will grow more freely in a greenhouse, if large specimens are required. Take advantage of their being under glass to fumigate for the destruction of insect pests.

DAHLIAS.—See Calendar for January and February as to the treatment of the roots. Those who require only a few cuttings may not care to put the roots into heat before the first week in this month. When the cuttings are long enough propagate as previously directed.

GLADIOLI.—To have a continuous bloom, plant at intervals of a fortnight, but the largest portion of the stock should be planted by the end of March in the South. Two weeks later will be early enough in Scotland and the North of England. Plant out those bulbs that were started in pots in February. Any plants above-ground should be protected on frosty nights, with an inverted flower-pot.

HOLLYHOCKS.—The cuttings of these take longer to form roots than those of the Dahlia, and they are liable to damp off instead of forming roots, unless the atmosphere is rather dry as well as close. When the cuttings or grafted plants are established, they should be

potted into 5-inch pots, placing the plants near the glass in a house where there is a little heat. In a fortnight the plants will be sufficiently established to admit of their being placed in a cold frame.

PANSIES.—Those in beds will continue to grow rather freely in fine weather: it will be necessary to see that no shoots are displaced by the wind, that beds are kept clean, and the surface stirred if necessary. Plants in pots under glass will produce a few flowers this month, and the beautiful velvety petals with their rich and varied colours, and the delightful perfume of the flowers, cause them to be much prized. Should the plants be intended for exhibition or if it is necessary to have them in flower by a given time, all the blooms should be picked off up to within three weeks of the time. In warm weather two weeks would be long enough.

PENTSTEMONS.—Plants that were put out in beds in the autumn must not be neglected. They will well repay the trouble of stirring the surface of the beds, and placing sticks to the plants as they start into growth. If the plants have been wintered in frames they may be planted out, and, like the Phloxes, they enjoy rich soil.

PHLOXES.—There is yet time to propagate these from cuttings; indeed the plants in the open borders or beds will not have grown sufficiently until this month. If the plants have been in the ground a season or more it will be quite necessary to give a dressing of rich manure to the surface, and if extreme neatness must prevail, the manure may be covered with fine soil. The cuttings put in some time in February will have formed roots by the

middle of the month and should be put into a frame where more air can be admitted to them.

PINKS.—The ground between the plants should be stirred up and the plants also be made firm. Protect from rabbits, and see that the leather-coated grub does not eat off any of the plants.

POLYANTHUSES.—These require very similar attention to the Auriculas. The trusses will be coming up strongly, and by the middle of the month the clear golden edge can be seen on the yet unexpanded flowers. Watering, airing the frame, and watching the gradual development of the flowers, is pleasant work. The true florist derives more pleasure, perhaps, from a few Polyanthuses or Auriculas than the owner of scores of glass-houses, who seldom sees his flowers except in a cut state.

PYRETHRUMS.—Plants that have been wintered in pots should now be planted in prepared beds or in the herbaceous borders. Remove decaying leaves from established plants out-of-doors, and surface-dress the beds; indeed, it may be taken for granted that in all cases this should be done with gross feeding plants, and the manure can always be just covered over with fine soil.

TULIPS.—If the weather is mild and other circumstances are favourable, these will have made a strong, healthy growth, and the flower-buds will show conspicuously. Mulch the surface of the beds with rotten stable manure. This arrests evaporation and prevents the frost from causing any material injury. In wet, cold districts, it is quite necessary to cover the plants on frosty nights, and especially after wet.

APRIL.

AURICULAS.—The best place for the plants this month is a house large enough for a person to stand upright in. The early sorts will be in flower the first week in the month, and in order to preserve their beauty as long as possible the house must be kept cool and the atmosphere rather dry. Many growers cannot afford the luxury of a house for them ; but with care they make an excellent display in frames. Ordinary garden lights are very useful too, because if it is necessary to keep some of the plants back for exhibition or other purposes it can be done by placing some of the frames under a north wall or other shady position. Some of the best varieties do not open kindly in frames, especially such sorts as True Briton (Hepworth), Lancashire Hero (Lancashire). Peveril of the Peak (Walker), Smiling Beauty (Heap), &c. When the flowers are open they must be shaded by some light material, as the sun's rays would scorch the petals in an hour. The plants make vigorous growth this month, and must be well supplied with water at the roots, taking care not to let any of it fall on the beautiful mealed foliage. As the flowers fade they must be removed; pinch off the pips, leaving the footstalks. As the plants go out of bloom remove them to a frame with its back to the south; the plants can here enjoy plenty of air and less shade than those not yet out of flower.

CARNATIONS AND PICOTEES.—If the weather is favourable, the plants may be removed from under the glass-lights to an open position out-of-doors, yet sheltered

from very high winds. If the flower-stems have advanced enough place the sticks to them. Remove dead and decaying leaves with a pair of scissors, and also weeds from the pots; at the some time slightly stirring the surface of the soil. It is desirable to keep the plants in the frame as long as possible, as rain, snow, and hail are not uncommon in April.

CHRYSANTHEMUMS.—The cuttings should now be well rooted and the plants may all be placed in cold frames, giving abundance of air, and removing the lights altogether in fine weather. Pot any plants that require it before they become root-bound, and on no account crowd too many plants into the frames: better grow a less number of plants, than injure them by overcrowding. See that the leaves are quite free from thrips and green-fly before the plants are placed out-of-doors.

DAHLIAS.—The plants may now be arranged in cold frames, allowing a sufficient amount of space between them. Admit plenty of air; this will cause a stocky growth, and produce leaves of great substance. The frames must be matted at night, as the plants might suffer from frosts through the glass. Place sticks to the plants, and re-pot into 5 and 6-inch pots before they become pot-bound.

GLADIOLI.—Plant out fortnightly for successional bloom. Sometimes the April-planted corms are those that produce the best spikes. In fine weather run the Dutch hoe amongst the plants in the earliest planted beds if they have appeared above-ground. Sow seeds in pots.

HOLLYHOCKS.—If the weather is favourable the

whole of these should be planted out if they have been inured to the weather. If at any time, owing to bad weather, the plants cannot be put out when they are ready, it is better to re-pot than to allow them to become root-bound. I have seen fine plants quite spoiled because they had been kept too long in the pots, the roots had coiled round the insides of the pots, and the plants were put out without uncoiling them. If they have become root-bound the roots must be disentangled, but it is better that the roots should be in such a state that they do not require to be disturbed.

PANSIES AND PINKS.—They should now be kept in a healthy growing condition. Neither of them suffer from inclement weather if the soil is sweet and in a condition to promote the development of healthy roots. If the weather is fine Pansies will produce flowers, and continue to do so freely. If weeds come up thickly it may be necessary to pick them out by hand, and when stirring the surface of the ground press the soil round the neck of the plants if it has been loosened by frost. See that they are free from insect pests, and if sparrows begin to peck the leaves they may be kept off by stretching lines of white cotton-thread along the rows about 6 or 9 inches above the ground.

PENTSTEMONS AND PHLOXES.—Plants in beds will have made considerable growth, and sticks must be placed to the young shoots, to prevent their being injured by the wind. This must be seen to in an early stage of their growth, or the stalks may snap off close to the surface of the ground. Phloxes in pots must be potted on as they require it, and if room cannot be spared

under glass lights for them, they may be placed out-of-doors in a sheltered place.

PYRETHRUMS.—As the plants advance in growth it is very interesting to watch the development of the rich green finely-divided leaves, and the flower-stems will also be steadily advancing. Although the plants look tender they do not receive any injury from frosts, unless very severe with high winds. Plants in pots must be very freely exposed to the air, the lights being used only to protect them from severe weather.

TULIPS.—The leaves do not suffer from frosts if they are dry, but those who grow for exhibition must needs shelter the plants from frost, as the tender petals are easily injured. If glass lights can be spared they are the best, and give the least trouble. The usual canvas tents are clumsy affairs, and cost as much as a simple arrangement of glass lights. The tents are of framework covered with canvas, and are large enough for a person to walk under. The canvas, of course, is moveable, and is drawn up and let down at pleasure with pulleys.

MAY.

AURICULAS.—There will still be a few plants in flower till the middle of the month, but by far the largest number will be past blooming by May 1. The plants are removed to their summer quarters as they go out of flower, and the best place is certainly the north side of a low wall. Potting should be commenced after the

middle of the month, for if the collection is a large one it will take some time to get the whole done. An amateur grower told me that he took just a month to pot all his plants, and he managed to get through on an average fifty pots a day. The soil should be shaken from the roots, and the long tap-roots must be well cut back; after re-potting, the plants should be placed at once in the frame, and the lights should be kept rather close until fresh roots are formed in the new compost.

CARNATIONS AND PICOTEES will now be making rapid progress, and the flower-stems must be tied to the supports as they advance in growth. Attend to watering regularly, clear off decaying and dead leaves, and keep the pots free from weeds. Disbud as soon as the buds can be perceived. Premising that the flowers are for exhibition, either the centre bud must be removed or the side buds. If the side buds are removed one flower only will be produced. If the centre bud is removed there will be three side buds; this system of disbudding will make a difference of a week in the time of flowering. Green-fly is a very troublesome pest, and is best destroyed when the plants are in the open air by dusting with tobacco powder.

CHRYSANTHEMUMS.—The plants will now be growing freely, and after the frames or glass structures where they have been wintered have been fumigated to destroy the green-fly or thrips that may be on the plants, remove them out-of-doors. Re-pot as the plants fill the pots with roots, and those intended for specimens should be trained and stopped as they require it. See that none of the plants suffer for want of water, as they are likely to

do if not carefully watched when the pots are filled with roots.

DAHLIAS.—The Dahlia is very easily injured by frost, and even in favourable districts it is not safe to plant out before the end of the month. Intending exhibitors would do well to have the ground prepared by forking it over during the spring months in fine weather; it does harm instead of good to work on the ground when it is wet. See that the glass lights are removed from the frames all day, and also at night when there is no danger of frost. Advantage must be taken of favourable weather to plant them out.

GLADIOLI.—A few roots may still be planted up to the end of this month; but all the choicest and scarce varieties should be planted out in April. Seeds may also be sown on fine ground in beds out-of-doors, or they may still be sown in pots, and the pots be plunged in a gentle hotbed.

HOLLYHOCKS.—Cuttings struck in the spring, if they were not ready for planting out last month, should be done as soon as they are well established. No one should begrudge the extra time and space required under glass lights to grow on scarce and valuable plants until they were well established. They ought to be well inured to standing in the open air before they are planted out.

PANSIES AND PINKS.—The first-named will now be a source of much pleasure to the fancier; the flowers are not only most welcome, but they are at their best and brightest in the flowery month of May. If the plants *are in beds* the surface of the soil should be stirred

occasionally, and the seed-pods be picked off as soon as the flowers fade—if seeds are not wanted. Peg the shoots down close to the ground. Sticks must be placed to the rising flower-stems of Pinks, and disbudding must be performed as advised for Carnations if fine flowers are wanted. If the flowers are merely to be cut for bouquets or vase decoration, it is as well to leave all the buds, as several half-opened on a stem, or in various stages of development, have a pretty effect when the centre bud is fully open.

PENTSTEMONS AND PHLOXES.—Ill weeds grow apace, and they are also very displeasing objects in flower-beds. See that they are removed, and if the weather is warm and dry, the plants will require a good watering. This may be done in early morning or at night, and after the first watering place a thin layer of short rotten manure on the surface of the ground between the plants. As the flower-stems advance in growth see that they are secured to the sticks, and that the latter have a firm hold of the ground. Continue to give two thorough waterings a week if necessary, instead of driblets daily. Plants in pots also require plenty of water.

PYRETHRUMS.—These require very similar treatment to Phloxes or any other herbaceous plants in pots. Some of them will flower this month, and the flower-stems must be tied to sticks like the others.

TULIPS.—These will be in full beauty from the middle to the end of May, and the cultivator who has been striving for perfection in his flowers will be able to enjoy the result of his care and watchfulness. There is danger from frosts even up to the end of the month.

The canvas screens, glass lights, or whatever protecting material is used, should be in requisition as often as there is danger of frost, and the shading must also be used to keep the direct rays of the sun from the flowers. Water as often as it may be required, taking care not to splash any upon the flowers.

JUNE.

AURICULAS.—Some growers put their plants out-of-doors in a shady place: I do not advise this treatment. They should now be under a north wall in frames, the lights to be removed at all times except during rain—we even run and place the lights over the plants for protection from a gentle shower. Continue to re-pot the plants as previously advised. Should green-fly appear it must be removed with a camel's-hair brush.

CARNATIONS AND PICOTEES.—Tie the flower-stems to the sticks as they advance in growth. Attend well to the watering of the pots, but do not apply it until it is really required, and then give enough to thoroughly moisten the soil. In hot dry weather syringe the plants overhead with clear rain-water. Aphides will probably be found clustering round the flower-buds; they may be destroyed by dusting the place with tobacco-powder when the leaves are dry. Keep the surface soil clear of weeds, and the plants of decayed leaves. Plants in beds may have the surface of the soil dressed with a compost of equal parts of rotten manure and good turfy loam.

CHRYSANTHEMUMS.—Attend to training down the stems of specimen plants. Probably aphis will be found

clustering round the points of the young growths. Destroy them by dusting with tobacco-powder. The plants will now be growing vigorously, and ultimate success depends upon the care bestowed upon them at this time. Begin to pot the plants into their flowering pots about the end of the month.

DAHLIAS.—Owing to unfavourable weather, the plants may not have been put out last month; as soon as possible it ought to be done now. See that they have been well watered previously. No plant is likely to do well if it is thoroughly dry when planted out of the pot in which it has been growing, nor will it succeed if the roots have been allowed to become matted round the sides of the pot. These, to some persons, may not seem of much consequence—mere minor details; but it is owing to attention to minute details that successful results are attained. If the plants have been well trained by previous exposure to the weather, they will not suffer much from winds or sunshine after being planted out.

GLADIOLI.—It is very desirable to keep the surface of the ground well stirred, whether weeds appear or not; and when dry weather sets in give the beds a good watering, and immediately after doing so mulch the surface with well-decayed manure; this, of course, arrests evaporation, and is also an excellent stimulant to the plants, as future waterings wash the nutriment from it down to the roots. By the end of the month the flower-stems of the early planted and the early flowering sorts will appear, and stout sticks should at once be placed to them.

HOLLYHOCKS.—Hoe the ground, water it and mulch

afterwards, as recommended above for Gladioli. With the hot weather red-spider may be expected to attack the leaves, but it can be kept under by syringing, or the leaves may be hand-washed with soapy water if the pest has spread much over the plants. Tie the stems to the sticks as they advance in growth.

PANSIES AND PINKS.—Plants in pots of the former will now be over, and if cuttings are not required they may be destroyed; plants in beds will still continue to bloom freely. If the beds are mulched and well watered the plants may have a rest by picking off all the flowers and pegging down the shoots. Pinks will be in full beauty from the middle to the end of the month, and a suitable day should be chosen to take off and insert the pipings.

PENTSTEMONS, PHLOXES, PYRETHRUMS, &C.—The directions given last month apply to this. Water freely, and attend to tying the flower-stems to sticks as they require it. The Pyrethrums will be in full beauty; Pentstemons will also be opening, and some of the early Phloxes. It is now the pleasant time of the year for the florist; who should be reaping the fruits of his labour in the enjoyment of the varied beauty of his pets.

TULIPS.—"Decay's effacing finger" sets in rapidly with the hot weather, and the petals drop off as the flowers sway in the gentle breeze; by the end of the month the leaves become quite yellow, and in early districts the bulbs may be lifted out of the ground. It is not desirable that they should remain in the ground an hour after the leaves decay.

JULY.

AURICULAS.—Potting may still be done, and off-sets will be numerous, and should be removed and potted at the same time. The seed-pods will begin to ripen this month, and the seeds should be sown as soon as they are ready; a batch of plants will appear in about three weeks, but young plants will appear at intervals for a year or more, so that it is well to be careful in picking out the young plants.

CARNATIONS AND PICOTEES.—If it is intended to get up as much stock as possible of any particular sort, all the small growths should be taken off and put in as pipings in the same way as Pinks are done. See that the flower-stems are fastened to their supports, as the flower-heads are heavy, for if this attention is not given to them they may snap off. The flowering period is from the middle to the end of the month in the south of England, and later in proportion as we advance northward. There is about two or three weeks' difference between the south of England and the north of England and Scotland. As the flowers open, the pots should be at once removed to the glass-house where they are to bloom. They must certainly be placed under some shelter from sun, rain, and wind.

CHRYSANTHEMUMS.—The potting of these must be finished this month. It is well to dip the tops of the shoots in soapy water, made more destructive to thrips and aphis by adding a little tobacco-liquor, or they may be dusted with dry tobacco-powder. The dipping is most effectual, and may be practised with those plants that have a single stem only.

DAHLIAS.—The plants will now advance rapidly in growth, and all the side-shoots not required should be pinched out; better to pinch them off when quite young than to have to cut off large growths with a knife. Leave the growths near the base, and before there is danger of their snapping off place sticks to them, about three or four round the centre one. Tie the shoots to the sticks as they advance in growth. Destroy slugs by dusting with fresh soot over the ground late at night, or fresh lime may be used in the same way. Earwigs get troublesome with the hot weather, and they must be trapped. Mulch and water freely.

HOLLYHOCKS.—The side shoots of these must also be taken off, to throw all the strength into the main stems. These side branches may be made into eyes or cuttings, to produce early flowering plants for next year. Earwigs also eat the leaves at this time, but must not be allowed to do so. Water freely and mulch as directed last month.

GLADIOLUS.—Tie the flower-stems to sticks, water freely in hot weather, and look out for a small light green caterpillar that eats the flower-buds before they emerge from their sheaths. A tropical summer, with plenty of water applied to the roots of the plants and syringing overhead in early morning, is the delight of this South African plant. In cold weather it is not desirable to syringe.

PANSIES AND PINKS.—Cool and moderately moist weather suits the Pansy best. Seeds must be saved from the best flowers. Pick the pods just before they burst, and lay them out on paper in a dry airy place.

Continue to propagate Pinks from the small side-growths, they root much more freely than the hard main stems so late as this; the plants will not be large from such, but they can be planted out more thickly. The bloom in the North will not be over until the middle of July in some districts.

PHLOXES, PENTSTEMONS AND PYRETHRUMS.—If it is intended to get up a large stock of any of these plants, the two former may be propagated very freely this month. The side-growths should be taken off and be planted in small pots in some sandy soil, the pots to be placed in close hand-glasses under a north wall, or in any other shady place. Portions of the Pyrethrums may also be taken off, with roots attached, and be potted and otherwise similarly treated. It will only be necessary to see that the pots are kept moist, and the leaves may be dewed over with a fine rose from a syringe or water-pot.

POLYANTHUSES.—These should be lifted from theo pen ground and potted this month, especially in the northern districts. The leaves may be dipped in soapy water to destroy red-spider and thrips. Place the plants in a close frame in a shady place, and see that they are kept moist at the roots.

AUGUST.

AURICULAS.—Seedlings should be potted off as soon as the first small leaf is formed after the seed leaves. Pot from six to nine in a 3-inch pot; encourage them to grow freely, as the earliest plants will probably flower

next spring. Alpines are more precocious in this respect than the more esteemed florist's section. Re-potting the old plants may still be attended to with advantage; the offsets put in early in the year will now be strong enough to be potted into 3-inch pots. During re-potting be careful of the smallest offsets. Scarce sorts should be placed under a bell-glass, where they will be almost certain to succeed with careful watering. The large offsets that are taken off above the ground take several months to strike root sometimes, and they will only succeed in doing so if kept close under bell-glasses.

CARNATIONS AND PICOTEES.—The plants should be placed in an open position out-of-doors directly the blooms fade. It is quite necessary to do this to check the growth of the "grass." It is almost too late now to put in pipings; but layering should be proceeded with; all the stock must be layered as early as possible in the month; the sooner roots are formed the better for next year's supply of plants. The same remarks apply to plants in beds; they must be layered immediately after those in pots are done.

CHRYSANTHEMUMS.—These will now be making a most vigorous growth. The plants must be kept quite free from insect pests, and the growing shoots of specimens be trained into position before they become too hard. Those plants intended to produce large exhibition blooms must be looked to about the end of the month. Near that time flower-buds will be seen at the ends of many of the shoots, and underneath each of these flowers three growths may be observed; if these are not removed they will start into vigorous growth, and the

flower-bud will be checked, and not develop itself into a flower. Remove them and the flower-bud will develop into a grand bloom before the middle of November. As soon as the flower-buds are set, manure water may be applied at every second watering.

DAHLIAS.—The principal work this month will be attention to watering, and fastening the main growths to the sticks; also removing all the small side-growths. Those varieties that produce small flowers will require to be the most severely thinned out, and ought to be done first, finishing with those flowers that incline to coarseness. All insect pests must be destroyed as soon as any trace of them is discovered.

GLADIOLI.—The same attention as to the various details of the work must be observed as was previously given. If it is intended to save seeds, the flowers should be hybridised during this month; as regards the late blooms, although it is not difficult to get them to set, the seed may not ripen. The best varieties, of course, should be selected as parents—perfection in form in the pollen-parent, brilliant and decided colours in the seed-bearer. I have taken many first-class certificates for seedlings out of a limited number of plants. Hybridising is performed thus:—Before the flowers open remove the anthers; next day take the pollen from the selected variety, and dust it on the stigma of the flowers from which the pollen has been removed. Do not trust to the first application; it ought to be done at least three times. I generally do it at 10 a.m. and 1 p.m.

HOLLYHOCKS.—These require similar attention to the Dahlias, as far as the routine work is concerned; both

are gross feeders, and liberal drenchings of manure-water should be given to each. The stems must be fastened to the supports as they increase in growth. Manure-water has a tendency to produce coarseness in some sorts, as in the Dahlia. See to this in watering.

PINKS.—The pipings will be well rooted by this time, and the boxes containing the plants should be placed out-of-doors in an open place; the plants become drawn and spindly under glass, or if they are too much confined. Plant them out, after ten days' exposure, 4-inches apart, in fine soil. If the place is now vacant where it is intended to put out the plants, it ought to be trenched up and some rotten manure mixed with it. This cannot always be done, but when it is possible the plants will succeed all the better.

POLYANTHUSES.—These may now be potted, as previously advised. The plants should be broken up by the hands into single crowns, each to be potted singly into 5-inch or 6-inch pots, according to their individual strength.

PHLOXES, PENTSTEMONS, AND PYRETHRUMS.—But little attention will be required for the last-named; flowers will be produced from late growths, and must be fastened to the sticks from which the decaying flowers have been removed. Phloxes in pots will be most useful this month to furnish the greenhouse or conservatory; the flowers are brilliant and distinct, and are also to be commended for their sweetness. In pots, as well as in beds, water must be freely applied. Pentstemons will now have grown into large plants, abundantly furnished

with spikes of distinct and brilliant flowers. These must be fastened to sticks, not as if the plant was tied together to make a broom, but spread out so as to exhibit its natural characteristics. Continue to insert cuttings in fine sandy soil under hand-glasses.

TULIPS.—If it is possible to prepare the beds for the reception of the bulbs this month, so much the better. The soil cannot be too frequently turned over; in this consists the greatest secret of success. The beds ought to be trenched up at least 2 feet deep.

SEPTEMBER.

AURICULAS.—The old plants of course require attention, and they certainly ought now to be established in their flowering pots. The small off-sets that were put into small pots, five or six in a pot, should now be potted off singly into small pots, if they are well rooted. Some of the off-sets are small indeed, and pots must be used in proportion to their size. Deep pots are best—"long toms" they are called—the object being to place a large number in a certain space. Seedlings must not be stinted for pot-room, if they show a vigorous development. Some of them may be large enough to pot singly in small 60's, others three in a pot that size. Plants that are throwing up autumn trusses must have the flower-buds pinched out before they open: such trusses exhaust the plants if the flowers are allowed to expand.

CARNATIONS AND PICOTEES.—The earliest rooted layers may be removed from the plants about the end of

the month. Pot them at once in rather sandy soil. Place the frame that is to contain the plants with its back to the south, and if the weather is sunny a mat must be thrown over the glass during the hottest part of the day, the lights to be tilted about an inch. The layers should not be removed when they are wet, or when the soil is wet.

CHRYSANTHEMUMS.—The principal work this month is disbudding the specimen plants, and "setting" the flower-buds on the plants intended to produce large cut blooms. Attend also to watering—any neglect in this particular will cause many of the leaves to drop off. The stems of specimen plants will have been bent down to produce a dwarf habit previous to this, and no more training will be required until the sticks are placed to the flowers. One flower only should be allowed on each shoot, all the small side blooms must be pinched off. It is only by incessant care and watchfulness that these plants can be maintained in such health that all or nearly all the leaves can be retained, but the main causes of the loss of leaves are mildew and careless watering; on the first appearance of mildew, dust with flowers of sulphur.

DAHLIAS.—This is the month when the florist may rest from his labours as far as this noble flower is concerned. The plants have been trained to the sticks and disbudding has been finished, and by the middle of the month the bloom will be at its height. Earwig trapping must of course be continued, as this pest is satisfied with nothing less than the juicy petals of the finest flowers. Intending exhibitors must of course pay considerable attention to shading their flowers. The delicate, almost

transparent, beauty of some of the light sorts is much enhanced by judicious shading.

GLADIOLI.—These will also be in full beauty this month, and but little more can be said about the details of the work different from last mon h. Setting the flowers for seed saving must be continued, and any of the pods from early flowers that are ripe should be gathered, and laid out on paper in a dry place. If it is intended to exhibit it will be quite necessary to shade. I do this in the simple way of placing some sticks round the plant or plants, fastening them together at the top, and placing a newspaper over it. Of course this is a very temporary arrangement, but I exhibited successfully for several years, and never tried any other way.

HOLLYHOCKS.—A succession of bloom will be kept up by spring propagated plants. Those raised from eyes or cuttings the previous season are usually over by the end of August. Cuttings and eyes may still be put in as previously directed. Water freely, if the weather is dry, all plants that are just coming into flower. Those that have done flowering had better not receive any water. If it is intended to save seeds of choice sorts the flowers should be picked from the pods without delay, for if they are allowed to rot they will cause the decay of the seed-pods.

PINKS.—If the instructions given last month were not carried out, no time ought to be lost in doing so this month.

PHLOXES.—Those who have grown a collection and flowered them in pots for the greenhouse, should now plant them out, if the flowers have faded and ground is

ready to receive them ; this saves considerable labour, for the pots require some looking after during the winter. On the other hand, if early cuttings are wanted it will be best to keep the pots under glass. Cut down the old stems as soon as the flowers fade.

PENTSTEMONS AND PYRETHRUMS.—Propagation of these may still be continued, the former from cuttings, the latter by taking the plants up and dividing them. The divisions should be potted, and if there is no convenience for doing this, it will be better to defer propagation until spring.

TULIP beds ought certainly to be prepared this month, and soil for planting the roots in ought also to be ready. Good turfy loam chopped fine, without any manure, is by far the best material, and it ought now to be put in a dry place.

OCTOBER.

AURICULAS.—The frames ought now to be removed to an open and more sunny position in the garden ; and water must be applied very cautiously. The lights must be removed, except to protect the plants from rain. Continue to attend to the most minute details of the work. Perfect cleanliness is essential to their well-being.

CARNATIONS AND PICOTEES.—The layers should be removed from the parent-plants during this month ; although it is as well to take off a few of the earliest about the end of September, the main portion of them

will not be ready until this month ; and, as a general rule, the plants take more kindly to their new quarters about the middle of the month. If the plants are not potted early enough, that is by the third week in the month, they have not sufficient time to become established before winter sets in.

CHRYSANTHEMUMS.—Those who grow a number of specimen-plants will be fully occupied this month in placing sticks to the plants. The best and cheapest, when they can be obtained, are osiers of a convenient thickness, and they should be used with the bark on them. If these cannot be obtained, those made of deal, and painted a light green colour, answers as well as any. They last a long time, and are neat. Disbudding must also be continued, and about the second week in the month the plants may be removed under glass ; if there are any that have been showing the colour of the flowers before this, they ought to be placed under protection before the general collection, as the petals are injured by much wet or frosts. Pay attention as to cleanliness as previously directed.

DAHLIAS.—These, of course, will continue to flower until they are stopped by frosts, and the attention they require until that time is limited to cutting out all flowers as they begin to decay, and seeing that those in various stages of development are securely fastened to the sticks. It is very desirable that the plants should all be correctly named, and this can be done before the plants are cut down. If it is intended to save seed from the best sorts, the pods must be cut with a stem, and it ought to be gathered dry.

GLADIOLI.—The beauty of these will be well over before the month is far advanced. Attention must be given to seed saving. As soon as the pods split at the top they may be picked off from the stem, and be placed in a dry, airy place, as before advised. It will depend upon the weather, to a considerable extent, as to the time for lifting the roots; but the last week in October is not too early. If a wet period sets in the bulbs suffer very much.

HOLLYHOCKS.—Cuttings and eyes may be put in early in the month. The pots should be placed in a hot-bed, plunged to the rim, but the heat from the fermenting material ought to be mild and on the decline. Plants of the choicest new varieties should be taken up and potted, placing them in a vinery, or any house from which frost is just excluded; they do better so than in frames, where the young growths suffer from damp, even with the greatest care.

PINKS AND PANSIES.—These ought to be planted without delay in the beds where they are to bloom. The plants will stand the winter best if they are well established before it sets in with undue severity. A few of each should be potted into small sixty-sized pots, as it is quite probable that there will be some casualties in a large collection of each.

PHLOXES AND PENTSTEMONS.—These may be planted out in beds this month, in much the same way as the others, and a few should also be reserved in pots of each.

TULIPS.—Everything ought to be in readiness for planting out about the first week of the following month. Indeed, offsets may be planted at the end of this month.

NOVEMBER.

AURICULAS.—There is generally a great amount of moisture in the atmosphere this month, and the difficulty is to prevent this from causing injury to the plants. What water is required to keep the soil sufficiently moist should be applied with caution. The decaying foliage must be carefully removed, and all the air be admitted that it is possible to give. In dense fogs it may be better not to open the lights at all; they ought still to be removed altogether when the weather is fine.

CARNATIONS AND PICOTEES.—These generally occupy frames contiguous to the Auriculas, and the treatment of the one at this season is very similar to that of the other. A fine day, if possible, should be chosen to apply water to the roots of the plants, and it ought to be kept from touching the leaves if possible. The forenoon is also the best time to do it. It is needless further to urge that the plants must be kept quite free from all insect pests; they will do no good unless this is done.

CHRYSANTHEMUMS.—This is the month that the amateur who grows a large collection is rewarded for all his toil. Dreary, dark November is made cheerful with the varied, chaste, and brilliant colours of this popular flower. Their greatest enemy is damp, and as soon as there is any decay on single petals of the large flowers, these ought to be removed as a check to its further progress. Those intending to exhibit will find abundant amusement in leisure minutes in withdrawing all deformed petals, and the hard mass of stamens in the centre of some flowers. This will allow the remaining

petals to grow into more perfect proportions. Pompones require but few sticks, and these merely to arrange the main branches. They are trained, to make large specimens, as Fancy Pelargoniums are trained.

Dahlias.—These are usually taken up this month; indeed, in some districts, it is as well to do so in October. Take them up on a fine, dry day, placing the roots in the sun with the stems downward to drain any water out thoroughly that may have gathered in the stems. The roots should be thoroughly dry before they are stored away.

Hollyhocks.—A large number of plants may be put out in good turfy loam, in a cold frame. They should be planted as deep as they were in the ground previous to taking them up. It is as well not to plant them too closely together. The plants, if potted, may also be plunged in cold frames, or pits; but if early cuttings from any sorts are wanted these must be placed in a greenhouse or late vinery.

Pinks and Pansies.—We have planted beds of both in November, when circumstances prevented its being done earlier, and they have done well; but that depends much upon the weather. Plants of both may be potted up, and wintered in frames.

Phloxes, Pentstemons, and Pyrethrums.—Whether in beds or planted out, they require but little attention. If the weather is mild, slugs will be on the move, and find out all the young leaves and tender growths, but they must not be allowed to do so.

Tulips.—They may be planted out any time during the month, according to previous directions. It is very

desirable that they be planted in fine weather, and preference should be given to doing it in the early part of the month.

DECEMBER.

AURICULAS.—The plants are now at rest, and the attention they require is limited to removing dead and decaying leaves, admitting as much air as it is possible to do. Whenever the weather is favourable the lights should be removed altogether. In the neighbourhood of London and other large towns the thick fogs, continued for two or three days in succession, prove very injurious. In some cases it is better to keep the lights quite close. Fumigate with tobacco-smoke until there is not a trace of green-fly; if that troublesome pest is quite destroyed this month there will be no further trouble with it until the flowering period is over. Seedling pots must be watched. From now until March young plants continue to appear above-ground; the soil, therefore, must not at any time be allowed to become dust dry. The more quiet the plants can be kept at this season the better. Trusses continue to form in mild weather, and for this reason it cannot be safe to allow the soil of such pots to become so dry that root-action ceases. If trusses form deep in the heart of the plant, and the incipient buds can just be seen, depend upon it if circumstances are favourable that will be an early and good truss. Trusses that are so far advanced that the stems can be seen should have the flower-buds pinched off.

CARNATIONS AND PICOTEES.—Like the Auricula these are injured by a close, damp atmosphere, and the same precautions as to airing must be taken. The position of the plants in the frames is another matter requiring some thought. Place the plunging material into the frame so that it forms a sloping surface, and all the plants must be about the same distance from the glass. They probably keep in the best condition through the winter if the pots are about a foot from it. Occasionally look over the plants, and remove the dead leaves: a pair of sharp-pointed scissors is most useful for this purpose. When water is required it should be applied with a small pot, and without wetting the leaves. During this month every trace of greenfly must be removed by fumigating.

DAHLIAS.—The roots of these will have been stored away, but they must not be quite neglected. The stems are rather succulent, and hold much moisture. If this has not been quite dried up the stem may become mouldy, and this spreading down to the crowns will destroy the incipient buds. See that the roots are not injured by being placed too close to hot-water pipes.

HOLLYHOCKS.—The same instructions as to airing the frames holds good for these; also as to the removal of decaying leaves. If they are planted out in the frame it is a good plan to just stir up the surface soil if it is wet. The soil should be fairly moist underneath but dry on the surface. If the plants in pots have been placed in a greenhouse or on shelves in any spare house near the glass, care must be taken just to keep the roots moist. Seedlings planted out in the autumn to flower next year must have the surface soil stirred with the Dutch hoe,

and if the weather is mild slugs will feed upon the leaves if they are not destroyed. Old plants of named sorts require the same treatment.

PANSIES AND PINKS.—The surface soil of the beds should be stirred with a small hoe or other iron appliance; weeds must be destroyed. If any of the leaves are eaten and the depredators cannot be discovered, watch at night with a lamp; the leather-coated grub and slugs both feed upon the plants, and they do so at night. Rabbits are also very fond of Pinks and other allied plants. Pansies in pots are quite at rest, but as they are wanted to flower early, the frame should be placed in a sunny part of the garden, and they should also be fumigated, if greenfly is present.

PHLOXES AND PENTSTEMONS.—If these are planted out in the open ground they will require but little attention. In mild weather the plants continue to make growth. The shoots at the base of the stems are now forming on Phloxes, and a warning note must again be sounded to watch for slugs, as they eat the tender growths quite off. The surface of the ground must be stirred when necessary; or if the roots have become exposed to the frost, a surface-dressing of rich soil will be highly beneficial. When severe frosts set in, mulch all such plants with dry frame manure, or the clearings-out of old Mushroom-beds.

POLYANTHUSES.—Some growers do not pot up their plants from the open ground until this month. It is much too late, and they do not become sufficiently established to produce large well-marked flowers. In the North of England and Scotland the end of July or

the beginning of August is considered the best time. About Manchester, and in all the Midland Counties, potting should certainly be done by August. About London, from the beginning to the middle of September is the best time. The trusses are formed much in the same way as those of the Auricula, but the Polyanthus does not seem to take such a long season of rest. The insect pests, too, are best destroyed this month by tobacco-smoke. Thrips and red-spider will not live in the cold weather.

PYRETHRUMS.—These may be allowed to remain in the ground all the winter, but it is very desirable to mulch the surface of the ground. If there is not sufficient stock, and increase is necessary, the plants may be taken up and divided, potting each portion into a 4-inch or 5-inch pot. If there is not convenience to pot them, the dividing of the plants should be delayed until spring.

TULIPS.—If these are not yet planted out, the operation should be performed without delay, choosing a dry day for the purpose. Some of the best Northern growers do not care to plant out until December, as the rainfall in November sometimes injures the bulbs. A good time to begin to plant is when the bulbs swell at the base, showing that the roots are forming. It is very undesirable that the ground should have a soaking of rain as soon as the roots are put out; therefore, consult the weather-glass before planting.

INDEX.

ANTIRRHINUM, The, 115; its propagation by seeds, 116; and subsequent cultivation in the open air, 116.

AQUILEGIA, The, 128; its cultivation in pots, 129; and in the open air, 128.

AURICULA, The, 1; notes on the classes; green-edged, 2; grey-edged, 4; white-edged, 5; selfs, 5; Alpines, 6; on the propagation of the, 7; how, and when to pot the, 11; hints on exhibiting the, 13; a selection of the best show varieties, 15; an alphabetical list of show flowers, 18; the Aphis which attacks the, 12.

AURICULAS, Alpine, 6; general notes upon, 21; a select list of, 22.

AURICULAS, seasonable hints on the management of: January, 134; February, 137; March, 141; April, 145; May, 148; June, 152; July, 155; August, 157; September, 161; October, 164; November, 167; December, 169.

CARNATIONS AND PICOTEES, 23; the properties of, 29; on saving the seeds of, 28; propagating by layers, 30; on potting, 26; on forming a collection of, 25: select list of the best varieties for general cultivation, 31: Mr. Adams' list of, 33; Mr. Rudd's list of, 36; Mr. Simonite's list of, 34; Mr. Turner's list of, 35. Seasonable hints on the management of: January, 134; February, 137; March 141; April, 145: May, 149; June, 152; July, 155; August 158; September, 161; October, 164; November, 167; December, 170.

CARNATIONS, Tree, or perpetual flowering, 37; on propagating, 39; select varieties of, 41.

CHRYSANTHEMUM, The: Mr. Haworth's classification of, 56; on the propagation of, 57; on the growth of specimen plants for exhibition, 60; on exhibiting the flowers of, 59; list of the best varieties in each section, 63. Seasonable hints on the management of: January, 135; February, 138; March, 142; April, 146; May, 149; June, 152; July, 155; August, 158; September, 162; October, 165; November, 167.

DAHLIA, The, on the early history of, 67; saving the seeds of: Mr. Keynes' practice, 70; propagation by cuttings, 71; cultural details, 72; insects injurious to, 74; select lists of, 75. Seasonable hints on the management of: January, 135; February, 138; March, 142; April, 146; May, 150; June, 153; July, 156; August, 159; September, 162; October, 165; November, 168; December, 170.

DAHLIAS, Single, 77.

GLADIOLUS, The, 86; its usefulness for cutting and exhibition, 86, 87; on the pot culture of, 87; how and when to plant, in the open ground, 88; on raising seedlings of, 89; a selection of the best flowers raised by the Messrs. Kelway, 91. Seasonable hints on the treatment of: January, 135; February, 139; March, 142; April, 146; May, 150; June, 153; July, 156; August, 159; September, 163; October, 166.

HOLLYHOCK, The, 79; its rise and fall as a garden flower, 79; its destruction by the fungus, *Puccinea malvacearum*, 80; cultural details, 82; seed saving and sowing, 83; the insects injurious to, 85; select list of varieties of, 85. Seasonable hints on the management of, January, 136; February, 139; March, 142; April, 146; May, 150; June, 153; July, 156; August, 159; September, 163; October, 166; November, 168; December, 170.

PANSY, The, 119; its propagation and cultivation in the open air, 119, 120; and in pots, 122; select lists of, 123. Seasonable hints on the management of: January, 136; February, 139; March, 143; April, 147; May, 150; June, 154; July, 156; October, 166; November, 168; December, 171.

PENTSTEMON, The, 111 ; its propagation by seeds, 113 ; and by cuttings, 113 ; list of varieties of, 114. Seasonable hints on the management of : January, 136 ; February, 140; March, 143 ; April, 147 ; May, 151 ; June, 154 ; July, 157 ; August, 160 ; September, 164 ; October, 166 ; November, 168 ; December, 171.

PHLOX, The, 104 ; how to propagate it, 105 ; its cultivation in pots, 106 ; and in the open air, 107 ; select list of varieties of, 109. Seasonable hints on the management of : January, 136 ; February, 140 ; March, 143 ; April, 147 ; May, 151 ; June, 154 ; July, 157 ; August, 160 ; September, 163 ; October, 166 ; November, 168 ; December, 171.

PICOTEES, Yellow-ground, 41 ; the improvements that have been made in, 41 ; notes on the new varieties of, 42.

PINK, The, 124 ; when and how to propagate the, 124, 125 ; a list of the best, 127.

POLYANTHUS, The, 93 ; the properties of, 95 ; how to obtain a collection of, 94 ; how to obtain seeds, 97 ; when and how to sow the seeds, 98 ; list of gold-laced varieties of, 99. Seasonable hints on the cultivation of : March, 144; July, 157 ; August, 160 ; December, 171.

PYRETHRUMS, seasonable notes on the management of : March, 144 ; April, 148 ; May, 151 ; June, 154 ; July, 157 ; August, 160 ; September, 164 ; November, 168 ; December, 172.

RANUNCULUS, The, 100; the properties of, 103 ; when to plant, 101 ; how to raise seedlings, 102. Seasonable hints on the cultivation of : February, 140.

TREE CARNATIONS, 37.

TULIP, The, 44; the different classes of the, 47 ; general hints on the culture of the, 45 ; how and when to plant the, 46 ; on covering the beds of, 50 ; select list of flowers, by Mr. Barlow, 52. Seasonable hints on the management of : February, 140 ; March, 144 ; April, 148 ; May, 151 ; June, 154 ; September, 164 ; October, 166 ; November, 168 ; December, 172.

YELLOW-GROUND PICOTEES, 41.

ILLUSTRATIONS.

PAG

ANTIRRHINUM HENDERSONI 11
AQUILEGIA CHRYSANTHA 18
AURICULA APHIS 1
„ "PIP"
„ Model of a Plant
„ „ Truss (
CHRYSANTHEMUM, Early Flowering 6
„ Pompon, Model of Perfection 6
DAHLIA, Large Flowered Double 6
„ Pompon 6
DAHLIA PARAGON 7
HOLLYHOCK FUNGUS 8
PANSY, a Model 12
POLYANTHUS PIPS 9
„ TRUSS, A 9
TRAMA AURICULÆ 12
TULIP FLOWER, Model of a 4
„ Flamed and Feathered Petals of a 4



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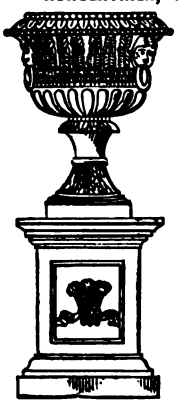
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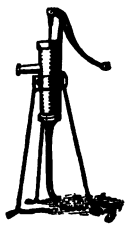
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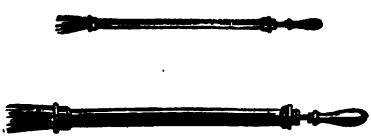
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